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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**A STRATEGIC APPROACH TO
HUMANITARIAN MEDICAL MANPOWER PLANNING**

by

Kathleen K. Cooperman
Linda J. Houde

March 2008

Thesis Advisor:
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**A STRATEGIC APPROACH TO
HUMANITARIAN MEDICAL MANPOWER PLANNING**

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ABSTRACT

The demand for “soft power tools” to positively influence stability and security has increased interest in Humanitarian Medical Assistance. Current medical manpower determination processes for staffing medical missions are based on the Required Operational Capabilities in the Projected Operational Environment. These platforms are designed to support combat casualty, disaster relief, and readiness training. The current manpower process fails to capture country-centric health care requirements associated with peacetime missions. To develop a country-centric approach, a demand-driven manpower model was constructed using standard health statistical indicators. The model draws from the statistical indicators to align medical manpower workload to country health objectives for delivery at the community level. The model framework guides medical planners in identifying mission essential medical programs and services. It shifts manpower planning from scenario based to country capability and needs assessment; which improves alignment to transformational doctrine. Finally, it creates clarity by using actual standard health statistics, thereby fostering prioritization of medical services and improved coordination with stakeholders, such as non-governmental organizations. It is recommended that a country-centric planning approach be adopted to optimize manpower resources and improve overall operational effectiveness.

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EXECUTIVE SUMMARY

The United States and other western nations are pouring billions of dollars into aid programs across continents such as Africa, the effects of which are largely unknown. While many developing countries continue to make considerable economic, social, and political progress, they are not immune from the effects of poverty. Poverty related issues such as chronic corruption, disease, climatic changes, population displacement, and regional conflict are destabilizing forces in the Global War on Terror (GWOT). These unstable environments have become breeding grounds for terrorist activity and the growth of illicit power structures that threaten the economic and strategic and national interests of the United States and their partners. GWOT has refocused attention to the importance of instability within these environments and has elevated the importance of military humanitarian medical assistance as an influential tool in establishing security and stability. For the United States Navy, this expanded mission builds on a wartime and readiness scenario manpower planning processes based on required operational capabilities of the projected operational environment. However, deploying from sea based platforms such as the hospital ship is transformational, planning and programming needs to flex to improve alignment with strategic doctrine such as the 2006 Quadrennial Defense Review, Forward From the Sea, and Cooperative Strategy for 21st Century Seapower. Changing perspective creates opportunities to align to global efforts, cultivate partnerships, and improve coordination across government agencies and stakeholders. This thesis provides a logical process for evaluating available country data and health information to estimate manpower staffing requirements for humanitarian medical missions.

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I. INTRODUCTION

The purpose of this research is to develop a scalable model capable of projecting humanitarian assistance manpower requirements based on a population's prevailing medical needs, as indicated in select readily available reports and databanks. Utilization of a scalable manpower model not only provides alignment of the mission to manpower resources but also improves the delivery of care and builds capacity in the country or region of interest. Medical humanitarian assistance operations are a soft source of influence available to combatant commanders in their respective areas of responsibility. The capacity to deliver healthcare services for any country is relevant to regional and global stability. Demand-side medical needs assessments drive manpower requirements. To increase the effectiveness of humanitarian assistance missions, combatant commanders need accurate manpower projections and resource requirements in order to scale outreach in the operational area of interest. Having these projections can influence both the decision to integrate medical outreach in humanitarian assistance missions and by which venue it is best carried out.

A. THESIS

Demand-driven medical manpower models serve to influence combatant commanders' decisions to integrate medical outreach and increase the effectiveness of humanitarian assistance missions. The question explored is, can a demand-driven manpower model improve alignment between manpower resources and country need?

B. RELEVANCE

This thesis is tied to several contemporary DoD issues relevant to humanitarian medical mission planning. First, the use of military medical assets for humanitarian assistance (HA) projects is a means of soft power available to combatant commanders to influence security and stability within their area of operation. Second, historically, missions other than disaster relief are based on professional and technological platform capability. Such planning tends to limit the focus of military missions to short-time

horizons that occur within a vertically integrated structure. As such, long-term impact is not only difficult to measure but longer lasting outcomes remain unknown. Third, this thesis aligns with existing strategic doctrine such as the 2006 Quadrennial Defense Review, Forward from the Sea, and others such as Cooperative Strategy for 21st Century Seapower. Finally, understanding the staffing mix required and operational constraints posed by mission medium creates greater flexibility to support global efforts, intra-agency coordination, and horizontal integration with stakeholders (non-governmental organizations (NGO), indigenous military, or healthcare programs).

In an effort to scientifically frame such complex challenges, this thesis utilizes the 7 Step Method, developed in the Team Handbook by Oriel to evaluate how a demand-driven manpower model strategically improves alignment by tying manpower resources to country need. In an effort to guide the focus to large scale medical missions, the 7 Step Method is incorporated into each section. The 7 Step Method is similar to Define, Measure, Analyze, Improve, and Control (DMAIC), a tool developed under Lean Six Sigma. The 7 Step Method shares DMAIC structure for analyzing complex problems and is used to sequentially analyze each step in respect to goal and output found in systematic problem solving. The steps include

1. “Project: definition of purpose and identify the scope of intention and measurements
2. Current Situation: explanation of background and focused problem statement
3. Cause Analysis: identify roots of the problem and develop a theory testable with data
4. Solutions: develop, test and implement solution and tested action should reduce impact of root causes
5. Results: use data to evaluate solution and compare pre and post effects
6. Standardization: maintain gains by implementing new work methods and train in the new method and monitor results
7. Future Plans: improve upon lessons learned by documenting, communicating, and acting on results (Scholtes, Joiner, & Streibel, 2003).

These sequential seven steps serve solely as a logical guide for developing and evaluating the power of a demand-driven manpower model. The first two steps are captured in this chapter. Both the purpose and scope explain why a demand-driven manpower model is important. Through this first step, this thesis highlights how such a perspective expands awareness for other opportunities for improvement. The second step is presented in the Background section, which provides a basic understanding of the problem and the background on the current humanitarian medical assistance environment—with a narrowed focus on large-scale humanitarian peacetime missions. The third step, presented in Chapter II, develops a means to address the issue of delivering humanitarian medical care within the context of country level health requirements. The fourth step is presented in the Methodology found in Chapter III. The model is the recommended tool used to present a possible solution to humanitarian medical planners in determining manpower requirements. The fifth step presents the results of the model and is presented in Chapter IV; this chapter presents test results from the model using country specific data. Finally, the sixth and seventh steps present opportunities for standardization and are captured in Chapter V.

C. PURPOSE AND SCOPE OF INTENTION

The purpose of this research is to develop a scalable manpower model based on a population's prevailing medical needs rather than deployment of the Department of Defense (DoD) resources. The goal is to improve medical mission planning efforts through strategic alignment of country health requirements to DoD medical resources and to increase awareness of collaborative partners, particularly with existing resource gaps. While collaboration is beyond the scope of this paper, it is fundamental to delivering humanitarian medical assistance and partnering with the local country communities and non-governmental organizations that remain in the area long after the DoD mission is completed. The scope of this thesis is solely confined to the determination of baseline medical manpower requirements for large-scale peacetime humanitarian medical missions, particularly forward from the sea missions that rely on USNS Mercy (T-AH 19) and USNS Comfort (T-AH 20) vessels. It does not address issues such as cost and constraints as it is assumed that any peacetime operation relies on planner identification

of core medical services appropriate to the operational environment. The scope of this thesis supports standard data collection processes and future development of measures of effectiveness. It aligns with international efforts and increases mission transparency.

The power of aligning manpower requirements to country need supports a cooperative security climate that facilitates coordination; particularly with other U.S. agencies such as the Department of State, USAID/ Office of U.S. Foreign Disaster Assistance (OFDA), Department of Health and Human Services, and Offices of Homeland Defense. As civil military operations increasingly call for humanitarian medical assistance, the role of military medicine will likewise increase. The issue of expansion lies at the heart of this thesis. Medical manpower planning for large-scale DoD peacetime humanitarian medical missions is beyond the traditional scope of planning for conventional warfare injuries, post conflict stabilization, and disaster relief efforts. It must flex to transform current approaches that influence combatant commanders' decisions to integrate medical outreach and increases the effectiveness of humanitarian assistance missions.

D. BACKGROUND

The governments of western nations such as the United States, Great Brittan, and France are pouring billions of dollars into aid programs across continents such as Africa. The effects of this aid is largely unknown. While some countries have made considerable economic, social, and political progress towards providing a stabile and secure environment within their sovereign territorial borders, chronic corruption, disease, climatic changes, population displacement, and regional conflict continually destabilize the effects of such progress. In the Global War on Terror (GWOT), unstable environments and lawless territories have become breeding grounds for terrorist activity and the growth of illicit power structures that threaten the economic and strategic and national interests of the United States and their partners. GWOT has refocused attention to the importance of instability within these environments particularly with countries such as Iraq, Afghanistan, and Pakistan, and, it may be indirectly responsible for expanding responsibilities of many diplomatic, political, and humanitarian tasks to the military from what has traditionally been a multilateral perspective.

In the Global War on Terror, Navy medical peacetime humanitarian medical missions deploy primarily from the sea on platforms or vessels referred to the USNS Mercy (T-AH 19) and USNS Comfort (T-AH 20). While there are other naval ships used in successful humanitarian assistance operations, they are grey hull vessels that do not possess the same symbolic power as the USNS Comfort and Mercy. Currently, there are no shallow draft hospital ships that symbolize good will in the naval fleet. For the USNS Mercy and Comfort missions, the Operational Plan (OPLAN) is used to notionally adjust manpower requirements and authorizations for each platform allocated to each vessel (Center for Naval Analysis, 1998). While the Authorized Manning Document captures the assigned Required Operational Capability in the Projected Operational Environment (ROC/POE) manning is intrinsically tied to technological and professional capability of the vessel. These peacetime operations incorporate the ROC/POE, but are notionally adjusted by subject matter experts. These adjustments are scaled to operational bed capacity or platform requirements up to 1,000 beds (Military Sealift Command, 2006). These vessels appropriately support combat casualty care requirements to the U.S. Marine Corps and Naval Fleet forces but it is uncertain that these manning requirements provide the best support for peacetime humanitarian assistance missions, which increasingly rely on civilian partners.

There are no known readily-available tools for medical mission planners to integrate civilian partners into large scale hospital ship peacetime missions. The lack of such assistance, however, is a seemingly normal shadow effect, which formed as a result of rapid transformation in the promotion of security and stability. GWOT presents as a boundless battle that challenges traditional concepts of conventional warfare and refocuses the importance of otherwise peripheral issues, such as the need for institutional capacity and the development of health intervention control programs in vulnerable countries. Such a refocus calls for expanded imagination and innovation in non-kinetic approaches to combat terrorism. Humanitarian missions in the post-September 11 environment provide valuable insight into developing alternative soft power approaches that aid in the prevention of conflict and promotion of stability and support the current policy environment.

1. Legal Authority: Office for the Coordination of Humanitarian Affairs

The Department of Defense provides humanitarian assistance under Title 10, U.S.C. 2561 (Margesson, 2007). The Overseas Humanitarian, Disaster, and Civic Action (OHDACA) appropriation funds three activities: the Humanitarian Assistance Program (HAP), the Humanitarian Mine Action Program (HMA), and Foreign Disaster Relief and Emergency Response (FDR/ER). The OHDACA appropriation funds these activities in support of the President's National Security Strategy and the Secretary of Defense Security Cooperation Strategy. The DoD receives an annual appropriation through OHDACA for Humanitarian Assistance Programs (HAP) (DoD Security Cooperation Agency, 2006). In 2005, the OHDACA budget increased from 49.4 million set in 2002, to approximately 59.6 million, with 39.6 million dedicated to HAP (DoD Security Cooperation Agency, 2006, p. 81). The DoD is authorized to conduct humanitarian civil assistance missions under Title 10, U.S.C. 401, Humanitarian and Civic Assistance Provided in Conjunction with Military Operations (Darrell, 2006). These programs strategically align under Combatant commander cooperative security efforts and may include civil engineering, civil governance, explosive ordinance disposal, medical, and logistics; however, the scope of this thesis pertains solely with humanitarian medical assistance.

Expansion of humanitarian medical assistance missions in today's cooperative environment calls for an innovated approach to manpower planning. Medical manpower planning based on country healthcare requirements is an incremental step towards improving mission effectiveness and global stability and security efforts. The basis for the focus on country healthcare requirements is to develop an understanding of the demand for services and to systematically standardize the planning approach. Such standardization is required for improving communication and fostering partnerships, requiring consistent data collection, and developing measures of effectiveness (which currently do not exist). This is a move away from casualty manpower estimation models that focus on the care of wounded sailors, soldiers, and marines, to what has become an increasingly cooperative and transformational environment. As such, a new perspective in the way forward is appropriate for medical mission planners as they increasingly

support combatant commanders in humanitarian assistance medical interventions. While such interventions fall within the range of options available to combatant commanders, the power of HA is only recently understood—as demonstrated by Operation Unified Assistance launched in response to the December 26, 2004, tsunami disaster in Southeast Asia.

2. Importance of Health to Security and Stability

The relationship between chronic and infectious disease to poverty and the adverse impact it has on economic development and political stability exacerbates the issue of regional security and stability. The burden of disease has elevated the importance of humanitarian assistance in supporting global stability efforts, particularly as globalization accelerates consumption of resources, transfer of information, and exchanges between people and the environment. Acceleration of human interactions with each other and the current state of the environment are inherently linked to political, economic, and social changes (Clunan, 2006). These changes are also linked to the effects of global warming and population density shifts that may challenge global stability into the foreseeable future. Future challenges to country stability are also tied to the emergence of new pandemics, population displacement, spread of contagious disease, and lifestyle changes that increase the prevalence of communicable and non-communicable diseases. As such, the struggle for political, economic, and social stability cannot be disaggregated from basic health of the population in developing countries.

History likewise, cannot be disaggregated. In many developing countries, periods of colonial interference and conflict have resulted in division of populations into ethnic clusters resulting from land redistribution programs. Existence of such factors may place the use of humanitarian aid at risk and present destabilization forces due to perceived inequities of the distribution of aid (McNeil, Kuehnast, & O'Donnell, 2004). Medical humanitarian aid that exceeds basic health care requirements and global humanitarian efforts may complicate the political legitimacy of the country and fracture a host nation's capacity for development on all levels: national, regional, state, and local communities. This is critical as growth of illicit power structures (IPS) often arise from a country's inability to provide basic services such as security, health, water, and sanitation (Clunan,

2006) Growth of illicit power structures are often associated with terrorist activity in countries suffering from a wide range of issues such as severe poverty, population growth, poor governance, slow economic development, and overall lack of institutional capacity to support social services. Such widespread and structurally complex issues to these emerging states or regions challenge not only the national interests of the United States but also the world. These macro level issues are beyond the scope of this thesis; however, the DoD's ability to plan manpower to community based health needs supports strategic partnering, operational effectiveness, and the promotion of political legitimacy for any willing country that desires a prosperous and free democratic society.

Planning to the country health requirement requires medical humanitarian planners to identify basic health requirements and scale the provision of services. Such an approach calls for a basic understanding of the major health programs in place to combat general diseases and conditions as well as the domestic health service infrastructure. Such an endeavor is imperative as the evolution of new challenges will surely emerge from old challenges in what has become an environment of rapid change. No longer can planners rely on reactionary structures and scenarios to plan to an operational environment that requires preventive measures to promote stability and security. This thesis advocates the use of medical humanitarian assistance driven by country medical needs to holistically improve the effectiveness of efforts by combatant commanders.

E. COMBATANT COMMANDERS

There are six geographically defined regions of the world: U.S. Central Command, U.S. European Command, U.S. Joint Forces Command, U.S. North Command, U.S. South Command, U.S. Pacific Command, and most recently, U.S. Africa Command.¹ Each region is represented by a regional combatant commander (combatant commander) who

may function at both the strategic and operational levels in synchronizing the applications of all instruments of national power in time, space, and

¹ From 2007 Course Materials, NW3275 Joint Maritime Operations - part 1 from Joint doctrine for campaign planning, 2006, published by the Naval War College, Newport, RI

purpose with the actions of other military forces, U.S. Government (USG) agencies, Non-government Organizations (NGOs), and Private Voluntary Organization (PVOs), regional and international organizations, and corporations toward theatre strategic objectives. (Naval War College, 2006)

Humanitarian relief and assistance falls within the range of military operations as a Flexible Deterrent Option (FDO) and is consistent with U.S. national security strategy. “FDOs are primarily designed to be used in groups that maximize integrated results from all the political, informational, economic, and military instruments of national power” (Naval War College, 2006, p. A-1). The combatant commander draws from the Range of Operations Military Operations (ROMO) to align, defend, promote, and protect national interests, regional stability, and democracy. Reaction to conflict draws from a broad spectrum of available options subject to U.S. foreign and domestic policies including the use of nuclear weapons, conventional warfare, and asymmetric warfare however, peacetime operations are soft instruments that appropriately align with proactive stability and good will efforts. For developing countries at geo-strategic crossroads, combatant commanders may require simultaneous constructive political, economic, and humanitarian assistance to deter disruptive behaviors and the development of a State hostile to American interests. While humanitarian assistance is only one aspect of confronting complex structural challenges, it is increasingly used as evidenced by the recent deployments to Southeast Asia and Latin America.

Combatant Commands are required to organize, plan, and conduct contingency operations within the geographically defined area. Within each Combatant Command, the Command Surgeon advises and coordinates the health planning and operations. While DoD does not automatically lead in peacetime operations, it is often the best equipped to fulfill the mission. As such, DoD may be requested to take the lead for the duration, initially or intermittently (Clunan, 2006). These operations are conducted under a joint task force (commander) established by the regional combatant commander. The joint task force is a flexible construct based on the mission (Clunan, 2006, p. 43). As such, critical to mission success is understanding the population’s prevailing medical needs. To increase the effectiveness of humanitarian assistance missions, combatant

commanders require accurate projections on manpower and resource requirements, as well as the scale of feasible outreach in the targeted area of interest; having these projections can influence both the decision as to whether medical outreach is integrated in humanitarian assistance missions and by which venue it is best carried out.

Access to information using the Internet expands the scope and volume of available data sources for medical mission planners; however, while these data exist, they are not easily translated into something useful to the planning process. Information needs to be captured in an easily digestible form that is specific to manpower estimation. The demand-driven medical manpower perspective reduces the mismatch between resources so that delivery of care is improved by providing the right skills at the right time. The goal is to integrate medical outreach and increase the effectiveness of humanitarian assistance missions.

With greater emphasis on building the combatant commanders portfolio of resources, service departments can expect humanitarian medical operations to increase. The service departments each face a unique set of constraints based on the medium of the operational platform (deep-water hospital ship, medical and dental civil action project, expeditionary medicine, grey hull shallow draft vessel, and fleet hospital). These known constraints impose systemic effects on the mission and remain outside of the scope of this thesis. They are, however, important to manpower planning and the indigenous country's capacity to treat a target population within a range of healthcare requirements. Establishing workload baselines and monitoring productivity requires a framework for analyzing the required medical resources. Regardless of the operational platform, demand-driven health assessments serve as a bottom-up approach that not only facilitate prioritizing but also create visibility for phasing and synchronizing projects across the geographically defined regions for each of the respective combatant commanders.

The demand-driven humanitarian model aligns with capabilities based planning by evaluating host nation healthcare requirements. While previously considered peacetime operations, for the combatant commander, the peace may strategically drive their future choices. Such a notion is tied to combatant commanders' ability to influence the environment within their respective region in order to protect American interests.

According to John Spinelli, “U.S. military peacetime operations shape the international environment by creating, fielding, and sustaining credible forces that can achieve multiple purposes: reassure and influence allies, deter adversaries, and influence neutral countries” (2008). He also points to the development of partnerships and the resulting powerful relationships that “promote regional stability, increase the security of allies and friends, build coalitions, and ensure a more secure global environment” (2008). HA medical operations provide a platform of exchange to test the spectrum of activities that better position U.S. forces in understanding their own capabilities and limitations, as well as potential weaknesses of allies and, thereby, strategically improving information required in response to crises (Spinelli, 2008).

F. STRATEGIC DOCTRINE

Strategic drivers of U.S. force planning and operations align under Executive Directives by the President of the United States, the National Security Strategy of the United States, the National Military Strategy of the United States, the National Defense Strategy of the United States, and the National Maritime Strategy of the United States; they are supported by doctrine such as Joint Vision 2020. These strategic initiatives convey the need for cooperation and alliances in order to promote free democratic societies, shared values, and shared military and security responsibilities around the globe, particularly in emerging states. The 2006 Quadrennial Defense Review Report (QDR) builds upon what has been a transformational defense agenda that builds on the 2001 QDR and the National Defense Strategy, published in 2005. The 2006 QDR is mainly based on the operational experiences in Afghanistan and Iraq, as well as a myriad of other missions including: humanitarian relief operations in response to the tsunami in the Indian Ocean, the earthquake in Pakistan, and hurricane Katrina. The purpose of the 2006 QDR is to support an agile environment capable of adapting to asymmetric as well as traditional threats. Specifically, it identifies four lessons:

- Having the authorities and resources to build partnership capacity, achieve unite of effort, and adopt indirect approaches to act with and through others to defeat common enemies—shifting from conducting activities ourselves to enabling partners to do more for themselves;

- Shifting from responsive actions towards early, preventive measures and increasing the speed of action to stop problems from becoming conflicts or crisis;
- Increasing the freedom of action of the United States and its allies and partners in meeting the security challenges of the 21st Century; and,
- Minimizing costs to the United States while imposing costs on adversaries, in particular by sustaining American scientific and technological advantage over potential competitors. (Office of the Secretary of Defense , 2006, p. 2-3)

In accordance with Defense strategy, there are four priorities: 1) defeat terrorist networks, 2) defend the homeland in depth, 3) shape choices of countries at strategic crossroads, and 4) prevent hostile states and non-state actors from acquiring or using weapons of mass destruction (WMD) (Office of the Secretary of Defense, 2006 p.3). Humanitarian medical assistance directly aligns with the third priority as a means to positively influence countries at such strategic crossroads and may also indirectly support other priorities, which contribute to stability and security efforts in a cooperative environment while increasing the potential to forge or expand partnerships. These four priorities point to the need for service departments to shift away from individual stove piped programs to develop joint-war fighting portfolios under combatant commanders. In 2001, the Department of Defense initiated a shift from “threat-based planning to capabilities-based planning,” changing the way war-fighting needs are defined and prioritized (Office of the Secretary of Defense, 2006, p. vi). The emphasis has shifted to the capabilities of the enemy and aligns those capabilities to U.S. resources. While the DoD has a strong history of assessing war-fighting capability, country healthcare capability and population health assessments have remained outside the scope of DoD activity. To effectively use the DoD medical assets in large scale peacetime operations aimed at “shaping the choices of countries at such strategic crossroads,” medical planners must identify basic country healthcare requirements and intervention control programs to achieve meaningful long-range outcomes (Office of the Secretary of Defense, 2006, p. 3).

G. DEPARTMENT OF DEFENSE POLICY

The Office of Assistant Secretary of Defense's Overseas Humanitarian Assistance Policy Guidance for Fiscal Year 2008 defines baseline guidance for combatant commanders to evaluate the appropriateness of potential projects. Under this directive, combatant commanders are responsible for issuing specific instructions and establishing standard operating procedures within their AOR that are consistent with GWOT objectives. Applicable aspects related to humanitarian assistance are divided into two sections below; for the full text of the unclassified DoD policy guidance see Appendix A.

Humanitarian Assistance General Guidance:

DoD humanitarian assistance (HA) is a significant tool for achieving U.S. security objectives and reflects American values.

Important complementary security goals that HA should aim to achieve include those of direct benefit to DoD, such as improving DoD visibility, access, and influence in a partner nation or region; generating long-term positive public relations and goodwill for DoD; and promoting interoperability and coalition-building with foreign military and civilian counterparts.. Just as important are indirect benefits to USG security interests that arise from improving basic living conditions of the civilian populace in a country/region susceptible to terrorist/insurgent influence; enhancing the legitimacy of the host nation by improving its capacity to provide essential services to its populace, including responding to disasters and other crises; and building/reinforcing security and sustainable stability in a host nation or region.

HA must complement, but not duplicate or replace, the work of other U.S. government agencies (e.g., USAID, department of health and human services) or other host nation authorities, international organizations, or local or international nongovernmental organizations.

Partnering: two critical components of security cooperation are interoperability and capacity-building. To foster these goals, HA projects must partner with the host nation, and should seek to partner with international organizations, other donor nations, local and international nongovernmental organizations, the private sector, or third party allied/coalition militaries, and USG agencies (e.g., state, USAID, agriculture, health and human services) as appropriate, to conduct HA projects that benefit the civilian populace and enhance the host

government's ability to provide essential services for its populace. Partnering with the host nation military is distinct from directly benefiting the military. In partnering on an HA project, the foreign military would work with DoD to benefit the civilian populace directly, thus promoting interoperability, capacity-building, and enhancing the image of host nation government in the eyes of the local populace.

Strategic communication: two vitally important, but different, audiences exist for HA projects. First, HA projects should send a consistent and sustained message to the host nation civilian populace that their government is capable of, and willing to, provide essential services to them, and/or is capable of responding to crises. Second, HA projects should send a tangible signal within the host nation, regionally and even globally, that DoD and the USG respond to humanitarian needs and have an interest in the well-being of those who are in need. To the extent possible, DoD HA efforts should be coordinated with and support to broader U.S. public diplomacy efforts. Projects should be designed to generate a sustained positive impact on the civilian population and sustained goodwill, not a single photo opportunity, in which strategic messages and project intentions could be undermined by lack of follow-up.

Humanitarian assistance project-specific guidance:

In addition to advancing U.S. security interests, DoD HA projects must also address legitimate humanitarian needs of the targeted population. Projects must be designed in coordination with host nation representatives and USAID to generate a sustained humanitarian impact. Health projects must emphasize public health capacity-building (including improving host nation disease surveillance systems). Health projects must be coordinated with the command surgeon's office, from initial project design through execution and follow-up.

Units undertaking medical activities generally must ensure they do not significantly exceed the standards of care already provided by the host nation. Providing care that significantly exceeds local standards can have a negative effect on the local health care infrastructure once the U.S. HA providers have departed. These effects can range from popular expectations of similar care from local health care providers, expected return visits by U.S. providers, and lack of sustainability for care provided.

Detrimental effects on the civilian population and a potential decline in the perception of the USG may occur should any of these effects materialize.

Capacity-building activities involve the transfer of technical knowledge or skills to individuals or institutions so that they acquire the long-term, independent ability to establish effective policies and deliver competent and effective essential services (such as safe drinking water, sanitation systems, public health, elementary and secondary education, and crisis/disaster response). Emphasis should be placed on knowledge/skills transfer, not simply donation of supplies or equipment. Examples of appropriate projects include the development of host nation organizational structures to respond to manmade and natural disasters, the pre-positioning of disaster relief supplies, or the establishment of surveillance systems that provide an early warning of disease outbreaks.

Participation of U.S. military forces: all HA projects including excess property projects should maximize visible U.S. military participation to ensure that the projects are effective security cooperation tools. Active DoD participation improves the prospects for developing channels of influence and access, potentially provides operational readiness benefits, and generates unique training opportunities. DoD's role must not be reduced to only providing funding. (Office of the Assistant Secretary of Defense-Health Affairs, 2007).

These guidelines provide an excellent focus for humanitarian projects related to enhancing the legitimacy of the host nation. The ability for a country to improve its capacity to provide essential services such as basic healthcare improves its future stability and security particularly in times of crisis. The issue of sustainable stability in a host nation or region is often tied to the health of its population. For medical manpower planners, they must determine how to align medical manpower in order to provide medical care that has the greatest impact on the overall health and stability of that country or region. While this guidance is excellent, it is DoD centric without the demand driven perspective.

H. PARTNERSHIP

As web based technologies expand U.S. economic interests across the globe, a greater emphasis is placed on improving security and stability within developing countries. There is also greater awareness of the disparities that exist between developing countries and industrialized nations. This brings thousands of humanitarian non-governmental and private volunteer organizations to the combatant commander's theatre of operations. These organizations operate a range of development programs that influence population health, which is a factor of stability for many countries with fluid borders within geographical regions. With the DoD increasingly called upon for health operations, whether post conflict or in response to man-made or environmental humanitarian disasters, medical humanitarian assistance operations generally include partnering with these inter-governmental agencies, allied militaries, and non-governmental organizations. Examples of these partners include, the Office of the Assistant Secretary of Defense for Health Affairs, the Stability Operations office and the Joint Staff Surgeon, Department of State, USAID, HHS, and international and non-governmental organizations such as WHO, UNICEF, UNOCHA, and Doctors without Borders.

DoD's expansion into civil-military relations expanded into the traditional civilian sector as a result of the events of September 11, 2001. In January 2008, Michael Noonan, Foreign Policy Research Institute (FPRI) published a report entitled, "Mind the Gap: Post-Iraq Civilian-Military Relations." The report captures important discussions that occurred during the FPRI Program on National Security held in October 2007. Bernard Carreau, senior fellow at the Center for Technology and National Security Policy at the National Defense University and a conference attendee, expanded on the strain occurring with the inter-agency process. He specifically examines the relationship between the Departments of State and Defense. Carreau points to incremental increases in DoD civilian sector activity that began with the liberation of Kuwait and continued to grow with the DoD involvements in Somalia, Haiti, Rwanda, Bosnia, and Kosovo. He defines September 11 as the cornerstone of government consensus and that the invasion of Iraq elevated the DoD over the State Department. Since this time, he points to substantial

increases in resources for the DoD and little-to-no changes in Department of State resources. He argues that this was not due to changes in foreign policy shift but rather, DoD has been more transformational out of necessity to the realities endured in Iraq and Afghanistan (Noonan, 2008). Carreau highlights how mal-alignment of inter-agencies may undermine operational effectiveness.

DoD, State Department, and USAID disagreed on priorities, especially on how to spend the initial \$18.6 billion in reconstruction projects once the CPA stood up with its “dual chain of command between the military and the civilian sides.” DoD favored big-budget infrastructure projects, while Department of State wanted to focus on governance and market liberalization and USAID wanted to focus on institution- and capacity-building. None of these things produced stability. (Noonan, 2008, p. 3)

Michael Noonan’s report also highlights Elizabeth Stanley’s, an assistant professor at the Edmund A. Walsh School of Foreign Service and the Department of Government at Georgetown University, perspective that there has been an increased reliance on what she describes as a “technocentric strategic culture” (Noonan, 2008, p.3). The culture, she claims, has become maladaptive due to the way in which technology is used to implement grand strategy. She identifies several symptoms of “cult technology” that degrade strategy and mission capability. The symptoms include misallocation of resources, poor strategic assessment due to overestimation of capabilities, decreased ability to work with allies, increased vulnerability to potential allies, psychological insecurity, outsourcing and privatizing security, misunderstanding the nature of networks, and the technical bureaucratization of the military profession. “For civil military relations, technocentric culture needs to be balanced with a human-centric approach” (Noonan, 2008 p.3). This is of fundamental importance for humanitarian medical mission planners as American advances in medical technology often far exceed developing country healthcare capacity. Efforts that surpass basic country capability are not compatible for long-run sustainable outcomes and may undermine the efforts of NGOs and PVOs who remain in the country long after the HA medical mission ends. Stanley supports the argument for greater interoperability, information sharing, and overcoming cultural barriers in order for the DoD to maximize operational success; all of

which rely on expanded partnership. It is imperative to improve cooperation and the knowledge management base to build a network that supports future operational capabilities that may serve to prevent future conflict. For the respective surgeons and medical planners, access to and analysis of accurate and timely population and environmental health data are required to align and determine the required medical skill mix, personnel quantity, and appropriate medium for delivering healthcare particularly when augmenting the mission with NGOs. Horizontal integration and coordination required to cultivate partnerships with U.S. government (USG) agencies, NGOs and the host nation, while beyond the scope of this paper, are systemically tied to building capacity and long-term positive outcomes.

The demand-driven model is a cultural shift from what is seemingly a technologically centric Western medical system. Incredible advances in Western medicine coupled with a strong desire to alleviate unnecessary pain and suffering sets medical planning efforts up for staffing the T-AH hospital ship missions—to state of the art technological and professional capability rather than country health requirement. While the ships are an excellent medium for delivering care, such planning places technology and operating capabilities above country requirements; which subsequently, creates mission vulnerability to adherence with DoD HA guidance not to exceed the basic healthcare requirements of the particular country. Additionally, DoD missions tend to have short time horizons, which creates difficulty in developing measures of effectiveness. Finally, not fully understanding country health programs and control initiatives may result in poor staffing mix and partnering; which are exacerbated when confronted by operational constraints pointed out in these CNA studies.

I. ALIGNMENT: MILLENNIUM DEVELOPMENT GOALS (MDGS)

The largest recorded gathering of world leaders occurred in September 2002 at the United Nations (UN) Millennium Summit. Approximately 189 countries united to discuss the state of the world's poorest nations. The UN members developed a statement of values, principles, and objectives to combat extreme poverty and entitled the document the "United Nations Millennium Declaration." This declaration outlined eight

Millennium Development Goals (MDGs) targeting the eradication of poverty and the improvement of living conditions. The following is an excerpt from the Resolution adopted by the General Assembly:

We believe that the central challenge we face today is to ensure that globalization becomes a positive force for all of the world's people. While globalization offers great opportunities, at present its benefits are very unevenly shared, while its costs are unevenly distributed. We recognize that developing countries and countries with economies in transition face special difficulties in responding to this central challenge. Thus, only through broad and sustained efforts to create a shared future, based upon our common humanity in all its diversity, can globalization be made fully inclusive and equitable. These efforts must include policies and measures, at the global level, which correspond to the needs of developing countries and economies in transition and are formulated and implemented with their effective participation. (The United Nations General Assembly, 2000)

The importance of the General Assembly's resolution was captured in the creation of eight Millennium Development Goals (MDGs):

Goal 1: Eradicate extreme poverty and hunger

- Reduce by half the proportion of people living on less than a dollar a day
- Reduce by half the proportion of people who suffer from hunger

Goal 2: Achieve universal primary education

- Ensure that all boys and girls complete a full course of primary schooling

Goal 3: Promote gender equality and empower women

- Eliminate gender disparity in primary and secondary education preferably by 2005 and at all levels by 2015

Goal 4: Reduce child mortality

- Reduce by two thirds the mortality rate among children under five

Goal 5: Improve maternal health

- Reduce by three quarters the maternal mortality ratio

Goal 6: Combat HIV/AIDS, malaria and other diseases

- Halt and begin to reverse the spread of HIV/AIDS

- Halt and begin to reverse the incidence of malaria and other major diseases

Goal 7: Ensure environmental sustainability

- Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources
- Reduce by half the proportion of people without sustainable access to safe drinking water
- Achieve significant improvement in lives of at least 100 million slum dwellers by 2020

Goal 8: Develop a Global Partnership for Development

- Develop further an open trading and financial system that is rule-based, predictable and non-discriminatory, includes a commitment to good governance, development and poverty reduction—nationally and internationally
- Address the least-developed countries' special needs. This includes tariff- and quota-free access for their exports; enhanced debt relief for heavily indebted poor countries; cancellation of official bilateral debt; and more generous official development assistance for countries committed to poverty reduction
- Address the special needs of landlocked and small island developing States
- Deal comprehensively with developing countries' debt problems through national and international measures to make debt sustainable in the long term
- In cooperation with the developing countries, develop decent and productive work for youth
- In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries

- In cooperation with the private sector, make available the benefits of new technologies—especially information and communications technologies (The United Nations General Assembly, 2000)

These goals unite and align the international community, NGOs, PVOs, and multinational corporations under a single cause. Such alignment has systematically concentrated financial resources to develop programs and standardize data collection for measuring progress. With more than a billion people living in impoverished conditions, the MDG efforts are ongoing with growing resolve and global commitment within the combatant commander area of responsibility. As such, the door is ajar: together the Departments of Defense and State may enter into what is, and has been, a legitimate means towards promoting social equity and future operational effectiveness. All organizations are welcome to align with the MDG; therefore, there is tremendous opportunity to build partnerships and construct a valuable communication node and network framework within a geographically defined area without a large DoD footprint. In the participant country's ongoing projects, the make up of participants include the international community, institutions such as the World Bank, agencies such as USAID, multinational corporations, and hundreds of private organizations. However, despite being united under the MDG, many ongoing development programs occur independently and do not receive the benefits of shared information. Cultivation of partnerships and alliances across these areas may serve to increase the flow of information and facilitate collaboration in combating similar population health issues, particularly in dealing with population dislocation. Strong alliances and partnerships demonstrate an improved commitment of governance, provide economic investment in people (such as healthcare and education) and serve to increase living standards (United Nations Development Programme, 2007).

The MDG have tremendous influence in decision making for humanitarian development programs for major institutions, organizations, and multinational corporations. To embrace the power of such alignment expands the opportunity for the combatant commander to softly shape the future environment within the AOR, which

may improve operational effectiveness, political legitimacy, and social equity. The MDGs focus development programs based on country needs and draw from major institutional participants that have centralized country level data from which standard indicators have been developed to create country development profiles. Such information can serve as a guide to DoD medical planners in determining which services and development programs to include for humanitarian medical programs. The indicators are particularly valuable to the U.S. Agency for International Assistance and Development in the provision of financial grants to non-governmental organizations (NGOs). For the DoD, this is important in understanding the types of programs and participants in the theatre of operation and is particularly valuable when coordinating and building on those partnerships through USAID.

J. ALIGNMENT: USAID PRINCIPLES FOR DEVELOPMENT

The United States Agency for International Development (USAID) is an independent federal agency operating under the general guidance of the U.S. Secretary of State. USAID operates in over 100 countries, with 75 field offices, as the lead U.S. Federal agency for delivering humanitarian aid and foreign assistance in the developing world” (U.S. Agency for International Development, 2008). USAID was formally created through an executive order signed into law in 1961 as part of the Foreign Assistance Act. Its history, however, traces back to the Marshall Plan under President Harry S. Truman, as part of reconstruction programs in Europe after World War Two (U.S. Agency for International Development, 2008). USAID lists nine principles that guide funding approval for development and reconstruction assistance. These principles are fundamental to distribution of assistance grants and serve to align the development objectives to economic growth, democracy and governance, and social transition: The nine principles include:

1. Ownership: Build on the leadership, participation, and commitment of a country and its people.
2. Capacity-Building: Strengthen local institutions, transfer technical skills, and promote appropriate policies.
3. Sustainability: Design programs to ensure their impact endures.
4. Selectivity: Allocate resources based on need, local commitment, and foreign policy interests.

5. Assessment: Conduct careful research, adapt best practices, and design for local conditions.
6. Results: Focus resources to achieve clearly defined, measurable and strategically-focused objectives.
7. Partnership: Collaborate closely with governments, communities, donors, NGOs, the private sector, international organizations, and universities.
8. Flexibility: Adjust to changing conditions, take advantage of opportunities, and maximize efficiency.
9. Accountability: Design accountability and transparency into systems and build effective checks and balances to guard against corruption. (U.S. Agency for International Development, 2005)

For the DoD, USAID is the principal agency for coordinating humanitarian assistance in foreign countries, which horizontally aligns under the National Security Council's Policy Coordination Committee (PCC) process. It is imperative for the DoD medical mission planners to understand USAID's connection to non-governmental organizations within the combatant commanders area of responsibility. Foreign aid and humanitarian development and assistance programs are largely possible for many non-governmental and private volunteer organizations (NGO/PVO) through corporate strategies created by the United States government. Multi-lateral participation for development goals have traditionally been identified as a coordinated effort through Department of State, USAID, and other development agencies. Execution of these goals has been carried out through contracts to private and indigenous companies as well as through grants to NGO/PVOs. While there is management and oversight of contract work, NGOs carry out the development objectives under their organizational mission. The byproduct of these contract and NGO/PVO efforts are generally tied to basic assistance programs often associated with poverty and connected to political instability and social economic improvements. NGO/PVO organizations often carry out development programs in highly remote areas over extended periods of time. NGOs/PVOs traditionally conduct their missions far removed from relationships with any military in order to remain a neutral party. But, in the GWOT this is changing. DoD service departments, Department of State, and U.S. government agencies increasingly compete for resources to manage global development programs. NGOs are often

religious and charity based with their own cultural identity and objectives. They do not ideologically align with U.S. foreign policy or military objectives. From the sociological perspective, they are public servants of society whose contributions are through peace operations conducted under the auspices of their organizational mission. From a psychological perspective, motivation for volunteer service serves different functions for different people that may or may not be self maximizing. Six identified functions for volunteering include: 1) values function, captures concerns for others, 2) understanding function, promotes learning and skill practice, 3) career function, serves as stepping stone for employment particularly among recent college graduates, 4) social function, captures peer pressure and acceptance, 5) protective function, escaping ones own problems, 6) esteem enhancement function, enhancing self confidence (Houle et al. p. 388). There are no known volunteer functions that align with U.S. Foreign policy objectives.

Humanitarian NGOs are often comprised of volunteers that do not consider themselves “force multipliers” rather they see themselves as committed to the organizational mission which obviously aligns with their individual benefit or utility gained from volunteering. In fact, the individual psychological benefit may be undermined if the NGO cooperates with the military as the organizational legitimacy is called into question by the violation of what is supposed to be a neutral body without government representation. Moreover, because NGOs remain in developing countries long after completion of U.S. military medical missions, they are fearful of how the local population will perceive their role in the area.

On March 5, 2005, in an effort to reduce barriers of cooperation, the U.S. Institute for Peace (USIP) facilitated a working group that included representation from the Department of Defense, the Joint Chiefs of Staff, the State Department, and the U.S. Agency for International Development. The culmination of the groups effort was the publication by the U.S. Institute for Peace entitled “Guidelines for Relations between U.S. Armed Forces and Non-Governmental Humanitarian Organizations” published on August 7, 2007. It is unclear however, how this information is circulating within and among the service departments as the term “force multiplier” is repeatedly used by senior leadership and culturally misunderstood by most boots on the ground. This is

problematic as NGOs, despite the GWOT shift of power to DoD and tie to broader strategic doctrine, have no obligation to assist. In the GWOT, cooperative security depends on collaboration across all organizations and allied militaries and as such, transparency and clarity of mission intent is critical for reducing barriers and garnering cooperation in humanitarian medical missions particularly as the All Volunteer Force is increasingly called upon for action.

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II. LITERATURE REVIEW

A comprehensive review of literature and information sources was conducted in order to identify critical inputs for developing a medical manpower estimation model that aligns to country health requirements. This review includes information specific to the DoD and inter-agencies and also draws from mainstream bodies of research on efforts to combat disease and illness in developing countries. The focus of this section is to draw out considerations that add value to the manpower planning process and to assist in determining which information is appropriate for inclusion into the model. Input identification is critical as the model merges standard health statistical information with military medical workload projections and benchmarks. The translation of such inputs is the estimated manpower requirement that requires additional checks for strategic alignment and appropriate notional staffing adjustments in accordance with the literature reviewed.

A. CENTER FOR NAVAL ANALYSIS STUDIES

Several contemporary studies conducted by the Center for Naval Analysis humanitarian operations were reviewed in order to understand current manpower planning and programming efforts. The Center for Naval Analysis (CNA) is the primary publication source for studies pertaining to Navy peacetime humanitarian medical missions in the GWOT environment. These studies enabled a comprehensive review of humanitarian medical manpower mission planning with respect to hospital ship deployments. They covered a range of topics including medical operational requirements and platform structure, integration of NGOs and allied militaries, an evaluation of factors that affect humanitarian deployments from the sea, and linking humanitarian action to strategic results. Several issues emerged from these studies that are not only important to the development of a demand side manpower model but the holistic approach in the medical manpower planning process. These issues include, trade offs created by platform

structure for mission execution, identification and prioritization of core medical services, the role of volunteers and participation, and understanding the population to leverage strategic impact.

1. Platform Structure and Trade offs

The issue of trade offs exists in any constrained environment. As mentioned earlier, the hospital ship platforms are structurally and appropriately designed to support combat casualty care, disaster relief, and medical training and readiness functions. These state of the art hospital ships are deep-water vessels at 894 feet long, 38.2 foot draft, and displacement of 69,360 tons (Military Sealift Command, 2006). As such, deep-water vessels are subject to logistic and transportation trade offs when deploying from the sea. CNA studied the driving factors that impact patient workload and type of care provided during the 2006 humanitarian mission of USNS Mercy to the Philippines, Bangladesh, Indonesia, and East Timor and confirms the existence of challenges to providing HA from the sea (Strauss, 2007). While trade offs and corresponding constraints are outside the scope of this thesis, they remain important as the model can estimate staffing requirements but it is up to the medical manpower planners to determine the appropriate mix of medical specialists and support staff in order to maximize the patient workload. Understanding the country health control intervention programs and the unmet basic health demand transforms current planning processes to optimize medical manpower and prioritize core medical services.

2. Identification and Prioritization of Core Medical Services

Identification and prioritization of core medical services may alleviate trade offs. CNA explored two staffing models based on the current configuration of the ships transportation capability and found that the Mercy will “rarely be able to send more than 150 personnel ashore per day if it remains more than a couple of miles from the shore” (Strauss, 2007, p. 35). In respect to port visits, additional factors such as poor weather, water depth, and distance to land are all confounding factors that affect the number of staff that can be transited to mission sites. “In respect to water depth and/or the ability to dock determines Mercy’s distance from shore. This distance significantly affects the

number of personnel who can be transported to shore per day, which in turn affects the amount of aid the ship can provide” (Strauss, 2007, p. 43). For these reasons, aligning medical manpower assets to basic or core country health requirements effectively improves optimization of manpower resources and hospital ship operational efficiency and promotes greater flexibility in scaling medical services delivered. As the study indicates, “If the patients’ medical requirements are known, they can be used to estimate the number of clinical staff needed to provide the services” (Strauss, 2007, p. 43). Aligning to the country health requirement further generates visibility of manpower shortfalls and presents the opportunity to target NGO and interagency personnel participation.

3. Volunteer Participation and Mission Integration

CNA studied USNS Mercy’s trip to Southeast Asia to provide humanitarian medical operations in the Philippines, Bangladesh, Indonesia, and East Timor. The decision to include virtually anyone who wanted to participate in the mission rendered the mission “participation based more on the availability of volunteers than on requirements for specialties” (Strauss, 2007, p.11). This decision became problematic because the participants had understandably different motivations for joining the partnership. Participant satisfaction is important to determine whether the Navy achieves its objectives in the mission (Strauss, 2007). Interestingly, the study finds that the fluctuations in the number of embarked NGOs and Allies in respect to population served by port visit did not necessarily increase the provision of humanitarian relief. The study finds little correlation between the number of embarked personnel and the size of the population served. A lack of correlation between the number of embarked personnel and workload created situations in which large numbers of personnel embarked for some of the port visits that had relatively low clinical workload requirements. CNA reported that several NGO volunteers voiced frustration as they felt underused, and, by embarking large numbers of NGOs and Allied militaries without calibrating staff size to workload, there were likely numerous times when the workload was too small to satisfy embarked personnel. (Strauss, 2007, p. 23)

From a strategic perspective, the importance of manpower planning requirements is critical to preventing diminishing marginal returns. The addition of one more NGO organization and/or participant to the embarked mission may lead to unintended consequences of participant dissatisfaction and adversely impact future partnerships. The study exposes how lack of a country health perspective clouds the manpower planning process, which is inherently linked to cultivation of partnerships in a cooperative environment. The lack of country health perspective is exemplified by CNA's recommendation "to the degree possible, arrange for NGO and Allied military staffing to be increased during the busiest port visits and reduced during the less busy visits" (Strauss, 2007, p. 25). The study further calls for innovative manpower planning efforts that explore the use of specific self-contained missions—such as Operation Smile which performed reconstructive cleft palate surgeries in Bangladesh. While outside the scope of manpower estimation, the incorporation of NGOs to augment active duty medical manpower is powerful and should be holistically evaluated within the projected operational environment as the benefits of self-contained operations require no additional medical staffing and serve as an excellent "plug and play" addition to any operation. Also, incorporating such missions may reduce uncertainty as to the timing and specializations required which, otherwise, make "it difficult to predict what staffing requirements should be filled by NGOs" (Strauss, 2007, p. 11).

4. Understanding Target Population and Strategic Impact

CNA has further explored the role of humanitarian missions using the United States Naval Ship (USNS) Mercy the USNS Mercy and Comfort in respect to public opinion. CNA finds that humanitarian missions such as Operation Unified Assistance, launched in response to the December 26, 2004, tsunami disaster in Southeast Asia indirectly shape public opinion towards the United States. The studies capture the importance of public opinion through polling organizations such as Terror Free Tomorrow (an independent non-partisan, not-for-profit organization). Polling results demonstrate that the "Mercy mission was favorably viewed by the vast majority of people who knew about it in Bangladesh and Indonesia" (McGrady & Strauss, 2007, p. 32). The implication for U.S. policy makers is that the Hospital ship is a powerful instrument of

American Foreign policy “at a time when Indonesian polls indicate that the overall view of the United States, and the war on terror, were declining in Indonesia” (McGrady & Strauss, 2007, p. 33). The unprecedented operation served as a turning point for 21st century disaster response and demonstrates the powerful potential returns to reputation capable of reversing anti-Western attitudes and beliefs. These potential returns have strategic and tactical implications. From the strategic perspective, meaning is created through the use of symbols, which the USNS Mercy represents. From the tactical perspective, the conduct of the operation, such as types and quantity of care provided, also impact public attitudes and beliefs. Two important findings concerning the mission and attitudes towards the United States from independent polling in Bangladesh and Indonesia are:

- 1) 95% of Bangladeshis and 85% of Indonesians viewed the ship and its mission favorably
- 2) 85% of Bangladeshis and 53% of Indonesians polled stated that the hospital ship deployment created a more favorable attitude towards the United States (McGrady & Strauss, 2007).

However, to truly capture the power of humanitarian medical missions, the projected operational environment must include basic country health requirements. Clearly, the provision of medical care in the aftermath of a tsunami increases the intensity for desired assistance, and while the Mercy ships symbolize compassion and caring by the American people, the ability to change attitudes would seemingly be different during peacetime situations because the types of illnesses and diseases would not only be different but proportionately different. In the disaster setting, services were clearly aligned with the country needs and international efforts, which provided significant return on reputation to the United States.

B. CENTER FOR DISASTER AND HUMANITARIAN ASSISTANCE

In February of 2004, the Center for Disaster and Humanitarian Assistance Medicine (CDHAM), a department within the Department of Emergency Medicine at the Uniformed Services University of Health Services (USUHS) conducted a survey of 215 total U.S. military personnel who participated in humanitarian assistance (HA) projects.

This article points to an absence of manpower planning and measures of effectiveness from the mission perspective. The survey finds that, on average, medical providers participated in five humanitarian projects but that the majority had no formal training and only six of the total 215 respondents had previously worked with non-governmental organizations. A vast majority of participants deployed on the humanitarian mission were Individual Augmentees (IA) and only 40% deployed with and led their respective unit (Llewellyn & Drifmeyer, 2002). The widespread use of IAs to fill staffing gaps that do not align with country health service requirements may erode unity of effort and promote inefficiency and frustration among personnel. The survey points to what appears to be a lack of centralized or standard manpower planning that adversely impacts all aspects of the projects, from planning through execution, to completion and follow up.

The survey results identify several areas of concentration for performance improvement to improve mission effectiveness; including, but not limited to: training, project scope, unit vs. Individual Augmentee (IA) approach, dedicated manpower, project planning and management, expanding type and focus of HA missions. The increasing role of humanitarian medical missions has tested the structural boundaries of DoD humanitarian capabilities and limitations and identifies shortfalls of the current planning process starting with the fact that,

most DoD personnel planning projects simply do not contact some of the very humanitarian organizations that might be able to provide valuable up-to-date information on: health needs of the country, other ongoing medical humanitarian projects, or similar information that would potentially readily allow DoD projects to be much more effective These other-than DoD contacts and participants could prove to be tremendous resource multipliers, greatly increasing the effectiveness of DoD humanitarian assistance with minimal costs. (Llewellyn & Drifmeyer, 2002, p. 5)

The CDHAM survey reveals how an “inward, DoD-centric focus” creates systematic limitations that prevent humanitarian assistance projects from realizing optimality because the projects are fundamentally and structurally flawed from the outset (Llewellyn & Drifmeyer, 2002, p. 4). “The narrow focus of DoD and the lack of coordination with either host nation or other-than-DoD humanitarian organizations may explain, at least in

part, the claim of some PVOs and NGOs that the military often does more harm than good in some humanitarian assistance operations, or that the military should not even be involved in international humanitarian relief' (Llewellyn & Drifmeyer, 2002, p. 6).

This survey supports the need for development of a manpower estimation model that transforms to an environment that increasingly relies on greater communication and integration of NGOs and PVOs. Under the current medical planning structure further alignment may not be possible. Notional staffing adjustments remain tied to the required operational capability of the hospital ship, therefore, it fails to incorporate host nation medical requirements, international efforts, and U.S. military and political doctrine such as the Quadrennial Defense Review and Office of the Assistant Secretary of Defense (OASD) operational guidance. It is not unprecedented for the issues of foreign aid and assistance to be politically debated in respect to legitimacy, social equity, and military effectiveness particularly during periods of economic downturns.

The defeat of the 1971 bill represented the first time that either House had rejected a foreign aid authorization since the program was first initiated as the Marshall Plan after World War II. Several themes merged to cause the defeat of the bill: (1) opposition to the Vietnam War, (2) concern that aid was too concerned with short-term military considerations, and (3) concern that aid, particularly development aid, was a giveaway program producing few foreign policy results for the United States. Attempts to reform the foreign assistance program -- particularly the economic assistance program -- were led by the House Committee on Foreign Affairs. Assistance for the poorest sectors of developing nations ("basic human needs") became the central thrust of the reform. To extend assistance directly to the recipient nation's population, Congress replaced the old categories of technical assistance grants and development loans with new functional categories aimed at specific problems such as agriculture, family planning, and education. The aim of bilateral development aid was to concentrate on sharing American technical expertise and commodities to meet development problems, rather than relying on large-scale transfers of money and capital goods, or financing of infrastructure. The structure of the FAA remains today pretty much the way it was following these 1973 amendments. (U.S. Agency for International Development, History, 2008)

Continued mission execution based on combat casualty and bed capacity requirements may subject future missions to legislative political agendas. In addition, opposition to the

war in Iraq, lack of measurable objectives, and sustainability mirror historic events of the early 1970s, when the Senate rejected the authorization for funding foreign assistance during fiscal years 1972 and 1973.

C. DISEASE SURVEILLANCE AND GLOBAL BURDEN OF DISEASE

Tracking diseases has been ongoing for centuries, but the measure of the burden of disease upon a community, country, region, or larger global community is recent and still evolving. Health statistics are the foundation for any demand driven humanitarian assistance and staffing models. A first of its kind, the Global Burden of Disease and Injury Series was initiated in response to what has largely been a lack of reliable health information and comprehensive health statistics. *Global Burden of Disease and Injury Series Volume II: Global Health Statistics A Compendium of Incidence, Prevalence and Mortality Estimates for over 200 Conditions* utilized a consistent approach to assess the aggregate disease burden based on major conditions and risk factors on both a country and regional level using Disability-Adjusted Life Year or DALY measures. While this thesis does not incorporate the DALY into the manpower model, it is important to frame the issue of disease burden to focus the DoD on basic humanitarian health requirements. This study identifies healthcare needs as primary care; child survival, and safe motherhood; vaccination; breastfeeding and other prevention and treatment of diarrhea and respiratory diseases; tuberculosis control; and the control of avoidable causes of cardiovascular disease (p. 14). Understanding the burden of disease from the country perspective may be enhanced by using a multidisciplinary approach that draws experience from physicians, disease specialists, epidemiologist, anthropologist, economist, and policy makers.

The study advocates a multidisciplinary approach for combating disease and the associated burdens on any country. The study offers several relevant decision process suggestions that may influence how medical planners can prioritize indicators, particularly when dealing with countries with a great deal of need. The first deals with the “Identification of national control priorities” (Murray, 1996, p.8). The study points to the fact that many countries have at a minimum a short list of health interventions as “an explicit priority for national and political administrative attention” (Murray, 1996. p.8).

Examples of these national priorities include interventions, such as the control of HIV, tuberculosis, and poliomyelitis, as well as smoking cessation and nutritional deficiencies. A second consideration from the Study is that allocating training time for clinical and public health practitioners for many educational institutions is fixed and may not occur where the burden of disease is high or where program interventions exist. As such, aligning U.S. educational efforts to existing disease treatment programs may incrementally improve capacity over time in areas with greatest need. A third consideration pertains to allocation of resources in respect to the magnitude of the burden of disease to a region. Estimation of the amount of workload required becomes essential to policy decision making. Therefore, “information on disease or risk factor burden is one (of several) vital inputs to development resource allocation.”(Murray, 1996. p.8). We recommend using this study to assist in defining mission objectives for humanitarian assistance.

D. SELECTING HEALTH INDICATORS

DoD humanitarian health data are currently collected by patient encounter and aggregated under broad categories of International Classification of Disease at the 9th series level (ICD-9). There is no published evidence of DoD humanitarian medical effectiveness benchmarks which elevates the importance of information sharing and the need for a consistent approach to humanitarian manpower medical planning. As with any human capital strategy, identification of the unmet need drives the work requirement. To adequately estimate DoD staffing, it must first identify the unmet need in order to determine the type of medical professional services required. While the population health needs may appear so vast that any assistance is preferred in the absence of assistance, the researchers could find no evidence to support such claim. In fact, review of the World Health Organization’s staffing process, suggests that using a rational process for estimating staffing based on population ratios per 1,000 is sufficient for planning to broad health issues within a developing country. However, estimation should account for variation within a population by location and the corresponding health service institutional capacity as these factors contribute to the demand for health services by geographical area. (World Health Organization/HRB/98.2, p5) To appropriately assess

variation, consistent data collection and measurement approaches can be adopted using standard statistical health measures and data collection tools such as the demographic health survey.

E. MEASURE DEMOGRAPHIC AND HEALTH SURVEY

The MEASURE Demographic and Health Survey Program (DHS) was implemented by the United Nations in 1984. Over the course of the last twenty five years, more than 220 surveys in 75 countries have been completed from Latin America to Asia (Measure DHS, 2008). The DHS survey provides a consistent medium for collecting data for comparative purposes over time. To date, it is one of the most comprehensive tools available for population health demographic assessment. The survey requires host nation participation and aims to improve consistency of collection and use of data for monitoring programs and improved policy decisions. MEASURE DHS survey results are compiled into national reports and standard health statistical indicators used by many major organizations and institutions such as the World Bank, World Health Organization (WHO), and the United Nations International Children's Emergency Fund (UNICEF).

Development of standard lists of statistical indicators is required to ascertain country health issues that scale to a population. In order to construct such a list, understanding the information source and how that information is filtered by major organizations and institutions is important. DHS surveys are also used to compile country health reports that provide humanitarian medical planners with a country perspective about their own health challenges and ongoing programs to meet them. This literature review includes a review of the following major organizations and institutions that provide readily available standard statistical information. They include, the World Bank Institute, World Health Organizations and corresponding databases which include HNPstats (HNP) and the WHO Statistical Information System (WHOSIS), and the United Nations International Children's Fund (UNICEF). In order to identify which statistical indicators should be incorporated into the model in respect to DoD humanitarian medical manpower mission planning, a mapping exercise was conducted and is attached as Appendix B. Appendix B illustrates all the various indicators,

databases, and organizations that were reviewed in conjunction with this thesis. Understanding the data collection sources and general flow of information between major organizations and institutions was important in reviewing statistical indicators for inclusion into the manpower model. The following provides a brief oversight of these institutions and organizations.

1. The World Bank

The World Bank publishes statistical data and provides country level reports that serve as the foundation for many policy and program decisions. The World Bank provides country statistical information to end user clients seeking to improve capacity of member countries. Data quality is critical for the establishment of baselines, monitoring progress, and evaluating goal attainment as well as the impact of programs or activities. Quality data requires consistent collection and agreement on the most widely used data indicators. The World Bank has taken the lead to provide such data as it frequently sponsors projects that align with good government policy and assessment of government performance in respect to development processes. Key demographic development indicators were developed and are available for five-year periods for specific countries, an example is provided using Kenya country information in Table 1. HNPSStats, a high powered health sector data mining division of the World Bank, meets the growing demand for timely and accurate statistical data as development strategies include metrics for monitoring effectiveness particularly, in relation to success of the MDGs. HNPSStats database, was designed to centralize health, nutrition, and population statistical information and serve as the single “hub” of information flows to “client countries, World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), Food and Agricultural Organization of United Nations (FAO), United Nations Population Division, United Nations Statistics Division, United Nations Population Fund (UNFPA), and the Organization for Economic Co-operation and Development (OECD)” (The World Bank Institute, 2008). HNP also collects “thematic data” which are compiled from survey data on population dynamics, nutrition, reproductive health, health financing, medical resources and usage, immunization, infectious diseases, HIV/Aids, and DALYS.

Key Indicator	Year	Latest data
External debt (% of GNI)
GDP (current U.S.\$) (billions)	2006	48,244.9
GNI per capita, Atlas method (current U.S.\$)	2006	7,439
Life expectancy at birth, total (years)	2005	68
Population, total (millions)	2006	6,517.8
Population growth (annual %)	2006	1.1
School enrollment, primary (% net)	2005	86.7
Surface area (sq. km) (thousands)	2006	133,841.3

Table 1. Key Demographic Development Indicators [Kenya Country Data: World Bank Institute, 2008]

2. The World Health Organization

The World Health Organization (WHO) classifies and captures information on morbidity and mortality statistics using the International Statistical Classification of Diseases and Related Health Problems (ICD). The ICD codes are used to classify diseases based on the presence of a wide range of visible symptoms and complaints, social circumstances, and external causes of injuries and diseases. “Every health condition can be assigned to a unique category and given a code up to six characters long. Such categories can include a set of similar diseases and provides a detailed description of disease and injury” (World Health Organization, World Health Organization, History of the Development of the ICD, 2008). The ICD code history dates back to the 1850 when the first edition was published. In 1893, the International List of Causes of Death was adopted by the International Statistical Institute. At this time, the WHO assumed responsibility for maintaining the list of causes for death until 1948 when it published the 6th edition under the title ICD (World Health Organization). The ICD publication added causes of morbidity to what has been an ongoing series that is now in its tenth edition,

ICD-10. The Military Health System has not yet adopted the ICD-10 and this thesis draws from 2008, ICD-9 series. These codes are integral to classifying disease and injury data gleaned from inpatient and outpatient patient health records. The importance of these ICD codes lies in the standardization of the collection and analysis of morbidity and mortality statistics.

The ICD has become the international standard diagnostic classification for all general epidemiological and many health management purposes. These include the analysis of the general health situation of population groups and monitoring of the incidence and prevalence of diseases and other health problems in relation to other variables such as the characteristics and circumstances of the individuals affected. (World Health Organization, History of the Development of the ICD, 2008)

The WHO Statistical Information System (WHOSIS) offers timely and comprehensive health data on all of the 193 participating WHO members. WHO has established an Internet database publishing a variety of country specific information pertinent to effective medical mission planning, particularly for selecting which basic health services to target for humanitarian intervention. The WHO identifies 50 core health indicators for monitoring global health and is organized into six categories: mortality and burden of disease, health service coverage, risk factors, health system inputs, differentials in health outcome and coverage, as well as basic socio-demographic statistics that are published annually in the spring. Such information may be scaled to provide a regional perspective on mortality and burden of disease. There are disease-specific data on HIV, malaria, tuberculosis, polio etc., as well as environmental lifestyle risk factors in respect to alcohol consumption, immunizations, nutrition, tobacco, and water and sanitation. Table 2 describes the categories of consistently collected information available to any interested organization or party.

All of these categories provide information necessary to understand the complexities associated with providing humanitarian healthcare interventions. The burden of disease in respect to morbidity and mortality, in addition to the country's technological, financial, and human resource capacity to control these burdens, are often found in the Country Cooperation Strategy (CCS). Each country conducts a strategic

assessment of its health status and identifies health concerns and efforts in the CCS. For the combatant commander, the CCS may be of particular interest as country initiatives may be compiled into a regional profile. Each participating country prepares its own CCS, as it is ultimately responsible for development success.

This bottom-up approach defines country objectives, healthcare priorities, and control interventions. Alignment to these objectives and priorities legitimizes the national government's health programs and focuses DoD delivery of humanitarian medical care to community-based basic health service. Such alignment ties country objectives to international efforts and provides DoD an opportunity to collaborate with NGOs and PVOs to bridge health service gaps that build health capacity and sustainability. The CCS defines health priorities that shape national health policies and strategies for medical planners and should serve as a guiding document to prioritize humanitarian health services and the required manpower staffing to execute the mission. Such a powerful alignment generates leverage in fighting communicable and non-communicable disease and expands opportunities for participation that all lead to improving the health capacity of the country, as previously identified in the Global Burden of Disease. Therefore, we recommend that this information be used in the medical manpower planning process.

OVERVIEW	PARTNERS	OUTBREAKS AND CRISES	MORTALITY & BURDEN OF DISEASE	HEALTH SERVICE COVERAGE	RISK FACTORS	HEALTH SYSTEMS
Country profile on regional site	Collaborating centers	Disease outbreaks	Mortality profile	Immunization	Chronic diseases	Health financing
Country cooperation strategy		Emergencies	HIV/AIDS treatment	Skilled birth attendance	Alcohol, tobacco consumption	Health workforce
International travel and health			Malaria		Access to water, sanitation	
			Tuberculosis		Under nutrition and overweight	
			HIV prevalence			
			TB prevalence and incidence			
			HIV/AIDS epidemiological fact sheet			

Table 2. Categories of Collected Information [After Ref. World Health Organization, 2008]

3. UNICEF: “Milkman to the World”

UNICEF was formally created on December 11, 1947, by unanimous vote of the first United Nations, General Assembly. The UN created UNICEF as a short-term humanitarian relief measure to provide food, medicine, and clothing to children living in war-torn Europe at the end of World War II (WWII). Within the first five years, UNICEF activity spread to more than 100 countries and at the height of activity in Europe provided over six million daily meals with milk, thereby earning the nickname “Milkman to the World.” UNICEF continues as a voluntarily funded organization with 37 national committees, of which, the United States is the oldest (UNICEF, 2008). UNICEF plays an integral role in the global effort to lift the burden of poverty and disease from children. Its concentrated efforts serve to protect and improve the lives of children and confront diseases such as leprosy, trachoma, malaria, tuberculosis, and hunger; all of which stifle country development and sow the seeds of instability.

UNICEF filters WHOSIS data and publishes child health indicator statistics on issues such as maternal child health, mortality, pneumonia, diarrhea, malaria, immunizations, education, and health systems support services.

UNICEF assesses the state of child survival and primary health care for mothers, newborns and children today. These issues serve as sensitive barometers of a country's development and wellbeing and as evidence of its priorities and values. Investing in the health of children and their mothers is a human rights imperative and one of the surest ways for a country to set its course towards a better future. (UNICEF, 2008 <http://www.unicef.org/sowc08/report/report.php>)

The collection and publication of child health information provides valuable insight into the health profile for children in developing countries. This standard statistical data and information may be utilized in developing the demand driven manpower estimation model.

F. GLOBAL SOURCES & HEALTH INDICATORS

Organizations and institutions such as the United Nations, World Health Organization, World Bank, UNICEF, and USAID through the Demographic Health Survey Measure, provide key country descriptive statistics and publish over 200 indicators. Individual review of each indicator is required to construct the list of basic health indicators that forms the basis for the demand-driven health care model. The indicators serve as the critical link between disease and potential unmet demand for healthcare within a particular country. Because many of these indicators are tied to MDG progress, a series of status questions on the country status towards MDG progress has been incorporated into the model. With respect to MDGs, the following determinations were made: UNICEF has been appointed the central information repository and MDG monitoring agent for child health, the World Bank Institute for economic development, and WHO for eradication of diseases associated with poverty. For the demand-driven manpower model, the following MDGs were identified as fundamental to influencing the type of humanitarian medical care for a developing country: Goal 1: Eradicate extreme poverty and hunger, Goal 4: Reduce child mortality, Goal 5: Improve maternal health,

Goal 6: Combat HIV/AIDS, malaria and other diseases. Additionally, Goal 7: Ensure environmental sustainability and, Goal 8: Develop a Global Partnership for Development, were identified as indirectly related to policy and development programs that would most likely involve greater reliance for DoD partnership with USAID. As the international community aligns financial and organizational efforts under the MDGs, the importance of measuring impact of development and health programs has resulted in international recognition of statistical indicators. The indicators by organizations are listed in Appendix B.

In conclusion, standard statistical information flows freely among major organizations and institutions and is often filtered to support many health, economic, financial, and political endeavors by global partners. This information can be utilized by medical manpower planners to develop an estimated demand for medical services. Country medical demand can be used to evaluate the proportionate staffing requirements within a given population scale. Such a perspective drives transformation to meeting peacetime humanitarian medical operations and fosters the environment for cooperation.

G. MANPOWER ESTIMATION

Developing a composite understanding of healthcare demand for a developing country is the first step to deriving a workload requirement for a given population. Once demand for health services is known, it can be converted to standard units of measure. In the model, estimating standard demand is the first step to manpower determination using the World Health Organization staffing ratios per 1,000 people when planning to the broad population healthcare requirement. The second step uses medical manpower staffing projections based on productivity or industry benchmarks to translate demand into medical manpower requirements. The following sections present a review of alternative approaches to measuring productivity that were considered in developing a demand driven manpower model.

1. The Sphere Project

The following review of the Sphere Project offers perspective on manpower determination and planning in developing countries. The Sphere project was

implemented in 1997 by NGOs performing humanitarian assistance throughout the world. NGOs such as the Red Cross and Red Crescent led the collaborative effort—drawing from the spectrum of participants to establish a Humanitarian Charter and Minimum Standards for delivering humanitarian disaster relief. Today Sphere membership unites NGOs under a humanitarian assistance framework that promotes organizational transparency and operational effectiveness in six key areas: water supply and sanitation, nutrition, food aid, shelter, health services, and security. While disaster assistance is beyond the scope of this thesis, it is important for the DoD to understand the cultural alignment of NGOs and their accountability to meet established indicators published in the Humanitarian Charter and Minimum Standards in Disaster Response (The Sphere Project, 2000). Sphere continually develops and publishes health standards and measures of impact to improve field performance.

The cornerstone of the handbook is the Humanitarian Charter, which is based on the principles and provisions of international humanitarian law, international human rights law, refugee law and the Code of Conduct for the International Red Cross and Red Crescent Movement and Non-Governmental Organizations (NGOs) in Disaster Relief. The Charter describes the core principles that govern humanitarian action and reasserts the right of populations affected by disaster, whether natural or man-made (including armed conflict), to protection and assistance. It also reasserts the right of disaster-affected populations to life with dignity. The Charter points out the legal responsibilities of states and warring parties to guarantee the right to protection and assistance. When the relevant authorities are unable and/or unwilling to fulfill their responsibilities, they are obliged to allow humanitarian organizations to provide humanitarian assistance and protection. (The Sphere Project, 2000 p.5)

Sphere is a powerful resource available to DoD medical planners, as it has a network potential of more than 80 organizations operating in over 400 countries. Sphere shares valuable information regarding morbidity and mortality rates associated with communicable diseases during humanitarian disasters. Sphere points out that disasters occurring in developing countries witnessed an increase of 60% to 90% in deaths attributed to one of four major infectious causes following a disaster: measles, diarrhea, acute respiratory infections and malaria (p. 273). Sphere also identifies preventable diseases such as malnutrition, yellow fever, viral hepatitis and typhoid, which children

are very vulnerable. Sphere defines two primary goals for humanitarian responders. First, prevention and reduction of mortality and morbidity, and second, efforts promote a return to normalcy for the area. For the DoD, understanding community health risks, resources, and capacity, in respect to environmentally destabilizing events such as disaster, may prioritize medical services provided during peacetime humanitarian operations.

According to Sphere's Humanitarian Charter and Minimum Standards in Disaster Response published in 2006, "priority public health interventions are designed to ensure that the greatest health benefit is provided to the greatest number of people" (p.254). As such, DoD humanitarian medical care should align with control interventions that are premised on evidence-based practice in which a demonstrated public health benefit to the largest audience is preferred. Sphere identifies these humanitarian interventions as adequate quantities of safe water, sanitation, nutritional services, food aid/food security, shelter and basic clinical care; and preventive and clinical services aim to control diseases of epidemic potential (p. 16). Sphere marries Minimum Standards, such as "People have access to information and services designed to prevent communicable diseases contribute significantly to excess morbidity and mortality" to a specific prevention indicator, such as a mass measles vaccination campaign and Expanded Program on Immunization (EPI) (p.274-275). Sphere Project guidance is very insightful and provides a range of options for medical staffing to programs such as, vaccinations, vitamin administration, and health facilities. It also stresses the importance of ensuring the presence of female health workers.

Sphere provides minimum staffing standards that may be utilized in to assess health system medical manpower capacity and distribution of services by population. These standards are based on level of care and population and list both the key indicators and the staffing figures, see Table 3. An example of the application of these standards is a gap analysis conducted by the WHO in conjunction with Sudanese health experts in Greater Darfur. The Gap Analysis Report for Greater Darfur provides insight into medical staff utilization and how corresponding staffing resources are distributed by locality (Malik et al. 2005). The study defines main indicators and their standard figures

for staffing resources for the Darfur, Primary Health Care (PHC) system. These indicators were used to calculate a baseline medical staffing requirement. For example, at the Community service level, staffing starts at a population of 500 to 1000. While this calculation is not used in the model, it is a logical example of scaling medical staffing to population need. This calculation is used to derive the standard staffing figure for the specific indicators within this level. For example,

Standard figure = (standard indicator * total population)/population served

For example:

standard figure of home visitors = ((1 home visitor) * 401,693)/750,

(750 = average per 500 to 1000 people) (Malik et al. 2005)

At the peripheral health facility level servicing approximately 10,000 people, the consultations per clinician per day = ((Total consultations/FTE equivalent in health facility)/ no. of days health facility open per week). At this level, WHO estimates, 1 health worker is required for one clinician per 50 consultations per day; as such, 7 health workers are required per week to cover 350 consultations. To determine the gap, WHO estimates the difference between actual number and the standard figure of health workers per week, which equals the number of health clinics per 10,000 population * 7 days. At the central health facility level, 5 qualified health workers are required and the facility is open 7 days. Thus, 35 health workers are required per health center per week. To determine the gap, WHO estimates the standard figure of health workers per week = ((Total no. of population / 50,000) * 35). The WHO demonstrates how the Sphere methodology can be used to develop universal minimum medical staffing standards that may aid decision making in site determination, education, and training efforts (Wurthwein, Gbangou, Sauerborn, & Schmidt, 2001). In respect to staffing reviewed in the CNA studies, the medical staffing requirements are significantly higher for staffing the hospital ships for deployments from the sea. This appears to be the case because the hospital ship planning structure is premised on combat and disaster related injuries rather than illnesses associated with poverty during peacetime.

PHC level	Population no.	Key Indicator	Minimum Standard Figure
Community	500-2000	Home visitor Traditional birth attendant Supervisor Senior Supervisor	1 home visitor per 500-1,000 population 1 midwife per 2,000 population 1 supervisor per 10 home visitors 1 senior supervisor
Peripheral health facility	10,000	Health worker ORT dressing Registration	1 health worker for 50 consults/day 1 locally trained person 1 locally trained person 1 locally trained person
Central health facility	50,000	Doctor Health worker ORT dressing, injections, sterilization Pharmacist Lab tech Registration Clerks Guards Cleaners	1 doctor 5 health workers for 50 consults/day 1 non qualified health worker 1 or 2 non-qualified health workers 1 or 2 pharmacist 1 lab technician 1 person 1 to 2 clerks 1 to 3 guards x
Referral hospital	Variable	Doctor	At least 1 doctor with surgical skills

Table 3. [From Ref. Source: Sphere Standard Figures of the key indicators of staffing resources, HISU, WHO, 2005]

2. Federal Efforts to Measure Productivity

The U.S. Department for Health and Human Services, Centers for Medicare and Medicaid Services (CMS) is an outgrowth of Medicare and Medicaid programs that were signed into law on July 30, 1965, by President Lyndon B. Johnson (U.S. Department of Health and Human Services, History, 2008). These programs have developed over time to become the standard in measuring medical workload for provider billing and reimbursement. The importance of the CMS workload measurement efforts is the adoption of these standards by the Military Health System (MHS). On March 6, 2000, The Department for Health Affairs (HA) signed into effect Policy 00-001, laying a cornerstone for standardizing military health system productivity. HA Policy 00-001 initiated optimization efforts across the MHS to increase the provision of direct primary care healthcare within the Military Treatment Facility (MTF) by re-engineering primary

care enrollment capacity (Assistant Secretary of Defense for Health Affairs, 2006). The policy is fundamental to the development of knowledge management information systems, common language for productivity for all services, and a standardized measurement approach for managing MTF capacity—and more importantly for this thesis, physician productivity. The Department of Health Affairs provided a model for each MTF to determine baseline enrollment capacity per primary healthcare manager or provider, which resulted in a ratio of enrollees to provider subject to four demographic factors: demand, productivity, availability, and readiness considerations. The basic calculation is:

$$\text{Enrollees/Provider} = \frac{\text{Weeks Worked/Year} \times \text{Clinical Hours/Week} \times \text{Visits/Hour}}{\text{Annual Visits/Enrollee}}$$

This calculation is not meant to marginalize other factors that influence enrollment capacity and productivity; rather, it is the first step evaluating how the following impact the delivery of care. The scope and complexity of practice, direct support staff, number and availability of exam rooms per provider, clinical support tools, business support tools, information management, demand management tools, and demographic factors are all confounding factors. These factors not only influence the number of visits per beneficiary per year but also the number of visits per hour (Assistant Secretary of Defense for Health Affairs, 2006).

These factors influence the variation across the service departments within the MHS and set the expectation that approximately 1500 beneficiaries are enrolled per primary care provider, who is supported by 3 to 3.5 clinical support staff, within two dedicated examination rooms; therefore, each provider sees approximately 3.5 patients per hour or 25 patients per day (Assistant Secretary of Defense for Health Affairs, 2006). For Navy Medicine, optimization of medical services incorporates business principles and guidelines to produce quality, evidence based medicine, data quality metrics and processes. Other Federal departments such as the Department for Veteran's Affairs have created similar evidence based on productivity models.

Federal Department for Veterans Affairs (VA) was tasked by the Undersecretary of Health to develop physician productivity staffing models. There were four medical

focus areas: primary care, cardiology, urology, and eye care. While primary care comprised the greatest share of workload productivity and staffing, it lacked a standardized approach for evaluating staffing in respect to consumption of resources. The VA model uses a managed care approach and empanels beneficiaries to salaried providers on a per member, per month basis. The Report of the Primary Subcommittee evaluates VA primary care staffing in order to set productivity measures that promote physician management of patient services within a given panel, which is balanced against industry benchmarks for patient access to care standards.

As with the Sphere staffing standards, the VA and DoD service department (e.g., the United States Army Medical Command) seek to establish minimum staffing standards. As with the VA, the Army's MEDCOM Manpower division was also tasked to develop a model based on the amount of work hours per physician and the average number of visits by a patient population to estimate workload per provider and required staffing (p. 4). The Army's also relies on RVUs to develop standards for primary care. For a primary care, the standard staffing is one physician per 1,178 population with 2.8 full time equivalents (FTE) support staff operating two exam rooms, which is age adjusted based on population composition for patients empanelled over the age of 65. The point is government regulation and quality conscious health organizations have driven data collection effort on provider productivity to formulate best practices and publish benchmarks. These benchmarks can be utilized to determine medical manpower requirements when the demand for health care services is known. The fact that standard workload is tied to the very same ICD framework for classification of disease is not by coincidence.

The ICD-9/10 codes, as mentioned previously, provide the diagnosis which can be further disaggregated based on productivity data due to standard practices observed for data collection in the Federal health service departments. These data collection efforts allow for broader perspective beyond descriptive statistics of ICD-9s and categorizing disease to capture the workload intensity required to treat disease. To create greater transparency, coding beyond ICD-9/10s is required. Relative Value Units were created by the Center for Medicare and Medicaid Services (CMS) to capture the relative intensity

of resources utilized during the provision of healthcare in the treatment of diseases and conditions. RVUs are numerical estimates aggregated from primarily two parts: Current Procedural Terminology (CPT) codes and Evaluation and Management (E&M) codes. The RVU values serve as a means to trend and track provider workload within a specific disease or health condition category used primarily for financial billing and compensation.

For Navy Medicine, tracking workload and clinical productivity is based on the Relative Value Unit (RVU) which captures clinical skills, clinical time, and resources required to provide medical care. RVUs represent the gold standard for measuring physician medical workload and are discussed in greater detail below. Current policy is based on Navy Medicine Business Planning Guidelines that relies on the RVU to develop benchmarks, thresholds, and support staffing. See FY09 Navy Medicine Production Thresholds and Productivity Benchmarks, attached as Appendix C.

The CMS RVU is comprised of three aspects, work, supplies expense, and malpractice; the DoD Military Health System (MHS), however, only utilizes the work portion to measure productivity. Work is defined by the amount of time and effort required to treat a patient and is indicated by the CPT and E&M codes mentioned above. The MHS captures all patient encounter data in the M-2 data-repository and reports RVU in a variety of ways. M-2 is a data warehouse that captures all patient health care information within the military health care system. This thesis uses the simple RVU which is the sum of all CPT codes for a given patient record. An example from the Federal Service Optometry Coding Guide v 2.0:

A new patient is seen for an annual exam in the optometry clinic – the doctor performs a comprehensive eye exam, a refraction, and fits/orders spectacles. The following CPT-4 Codes were recorded:

CPT 92004 – Comprehensive Eye Exam (1.67), CPT 92015 - Refraction (0.38), and CPT 92340 – Monofocal spectacles fit/order (0.37); therefore,

The total RVU workload intensity = $1.67+0.38+0.37 = 2.42$ RVU. (U.S. Army Center for Health Promotion and Preventive Medicine website, 2007)

For the MHS, the Army and Navy Medical Commands have establish benchmarks for monitoring care and meeting industry standards and accreditation compliance with organizations such as the Joint Commission on the Accreditation of Healthcare Organizations.

Only within the last several years has the DoD embarked on large-scale peacetime humanitarian medical assistance efforts. As such, data collection largely occurs at the ICD-9 level as encounter data that is rolled under large categories of care. For an example of this data, see Table 4. Unfortunately, existing data has only captured the ICD-9 category and falls short of capturing even the basic ICD-9 code. Lack of data quality and accurate capture of codes prevents analysis of previous HA missions because it does not capture the detail of the work performed by medical providers in the field. ICD-9 level coding alone is not sufficient to estimate workload requirements. The RVU provides insight into the workload intensity for basic health services within professional medical specialties such as family practice medicine and provides greater understanding of required support to the provider for an expected level of demand. Such a model in theory is an incremental step towards promoting fiscal transparency and development of measures of effectiveness.

Determining medical manpower requirements requires a rational approach to estimating the medical workload. Industry benchmarking initiatives to capture appropriate workload for medical providers serve as the basis to calculating appropriate manpower levels. The ongoing efforts to measure the average daily intensity of work produced by a single provider for all medical specialties has laid the ground work for developing a manpower estimation calculation. It follows that any rational process that uses existing benchmarks can be a reliable predictor for calculating manpower requirements.

MEDCAP Patient data										
ICD9 Category	Zamboanga	Tawi Tawi	Jolo	Simetdue	Nias	Banda Aceh	Kupang	Tarakan	Dili	Total Count
Infectious and Parasitic Diseases	20	112	43	24	48	34	117	161	2	561
Neoplasms	1	11	4		1	3	28	27		75
Endocrine, nutritional & metabolic diseases and immunity disorders	6	44	11	20	17	18	93	79	4	292
Blood & blood-forming organs diseases			1					1		2
Mental disorders		2		1	2	2	5	6	1	19
Nervous system & sense organs diseases	8	48	26	18	18	25	43	54	4	244
Circulatory system diseases	9	24	9	23	26	28	72	138	5	334
Respiratory system diseases	58	342	273	84	160	89	349	515	24	1894
Digestive system diseases	8	74	33	51	93	43	235	207	38	780
Genitourinary system diseases	5	65	24	14	16	22	96	226	9	477
Skin & subcutaneous tissue diseases	15	54	17	17	35	18	68	159	6	389
Musculoskeletal system & connect tissue diseases	6	84	46	92	193	83	232	269	12	1017
Congenital anomalies			1		2	2	3	9	5	22
Certain conditions originating in the perinatal period										
Symptoms, signs, & ill-defined conditions	1	219	147	55	147	80	244	206	9	1108
Injury and poisoning	4	23	18	15	19	14	47	56	2	198
Complications of pregnancy, childbirth, & the puerperium										
No Code Assigned*	415	357	87	80	62	69	329	393	304	2086
Total patients seen at each site	556	1459	740	494	839	530	1961	2506	423	9508

Based on recorded data. Does not include dental extractions and optometry visits. No code assigned includes physical exams, immunizations and undentifiable diagnoses.

Medical Modeling, Simulation, and Mission Support

Table 4. Categories of Care [Source: Naval Health Research Center, Humanitarian Assistance and Disaster Relief Operations T-AH, 2006]

III. METHODOLOGY

A. WHAT IS THE MODEL?

The demand-driven model provides a logical framework using Microsoft Office's Excel software. It is comprised of a series of worksheets that link together DoD humanitarian medical assistance information from two levels; government policies and community healthcare requirements. For the demand-driven perspective the model was designed to merge the standard statistical indicators information collected on a specific country with the medical specialty benchmarks for productivity. Merging medical workload with medical specialty productivity benchmarks creates a ratio that aligns medical manpower requirements to the demand for basic healthcare services within a given country. The model navigates end users to internationally recognized sources that publish specific information necessary to construct a country healthcare profile. End users enter the specific statistical health indicators into identified worksheet information data fields. These data fields merge the information into the workload calculation for determination of services and medical staffing requirements. The demand-driven manpower model was adapted from the Fleet Requirements Manpower Determination Process. This process evaluates inputs, throughput and results. The results are subdivided into outputs and outcomes in order to disaggregate how the output relates to broader strategic outcomes. The conceptual model is illustrated below as Figure 1.

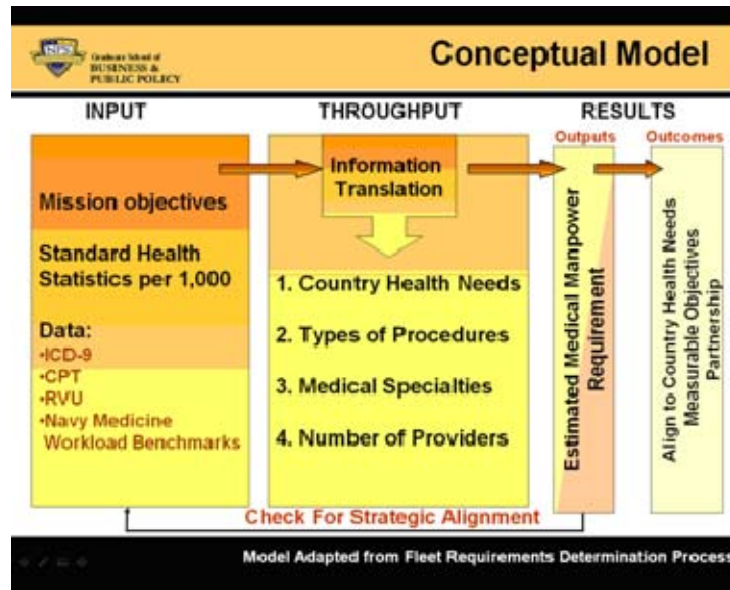


Figure 1. Theoretical Demand Driven Manpower Model [Naval Postgraduate School, Manpower, Personnel and Training, 2008]

B. MODEL FRAMEWORK

The model was designed to translate three primary input elements into a manpower estimation output and create greater understanding of the operational environment through evaluating expected outcomes. The three critical elements of the model include the mission objectives, standard statistical indicators, and medical manpower productivity. It is important to note that the Fleet Manpower Determination process utilizes the Navy standard work week hours to develop staffing estimations in documents such as the Activity Manpower Document (AMD) and Fleet Manpower Document (FMD). In the adapted model, the standard work hours for medical specialties utilizes Navy Medicine's 168 hours per month work standard which is a shore based requirement (Naval Postgraduate School, 2008). The throughput of the model translates the inputs in respect to country specific health requirements, associated workload, appropriate medical specialty, and manpower quantity required.

1. Model Input

The first critical element for the model is the mission objective. The mission objective is tied to the country health and intervention control initiatives. These initiatives are fundamental to a country's progress towards achieving millennium development goals. The model requires the medical planner to input country status information by completing a MDG status sheet. The status sheet is designed to give planners a means for subsequently evaluating strategic alignment of the manpower model estimations. The purpose is to link country progress to global efforts within a given country. Understanding the progress of countries towards these global efforts provides insight into vulnerable areas in need of capacity strengthening. Country MDG status provides the first broad brush perspective for planners to ascertain what medical programs may or may not be required. Also, the model framework addresses the issue of partnership through a series of questions based on USAID principles for developing countries. The importance of aligning within the USAID framework for mission planners lies in developing partnership with USAID and corresponding NGOs operating within the country, as well as, discerning the appropriate level of humanitarian healthcare. For example, countries that are considered stable may be more appropriate for advanced medical and education training. Clearly, core basic healthcare services should be deployed to developing countries with limited health system capacity to align with international efforts.

The model links planners to country specific documents that are generated by the country. The Country Cooperation Strategy and the DHS Country Report are examples of such documents. These powerful documents contain country intervention control efforts and identify critical information for collaboration such as organizational structure of the health system, health investment as a percentage of country gross domestic product and key individuals involved in developing the country healthcare assessment. This document also links government policies to local community health control interventions. Medical planners input health control intervention programs as mission objectives into the model which are used to assess manpower estimations for strategic alignment.

The second critical input to the model was derived from a comprehensive review of standard statistical indicators. The model uses standard statistical indicators based on categories for morbidity and mortality coding identified in the Literature Review, the International Statistical Classification of Diseases and Related Health Problems (ICD). A mapping exercise was conducted in order to review the potential 200 statistical indicators. The indicators were mapped to determine how information flows from each source; for example, WHOSIS was identified as the central repository for health information and statistical reporting; however, UNICEF filters WHOSIS and DHS data to provide indicators for assessing child health programs. Approximately 40 indicators fell outside the scope of this thesis into economic or social indicators, the remaining 160 were identified as health related and considered initially for inclusion into the demand model.

The 160 indicators were then evaluated and selected for the model based on consistency of data collection and reporting as well as international recognition as appropriate statistical measures. As stated above, the indicators were also reviewed in respect to alignment with MDG health specific efforts such as reducing child mortality, improving maternal health, combating aids, and tuberculosis. The indicators were then evaluated for duplication; for example, indicators reported in wealth quintiles, and population distributions such as urban and rural were eliminated. However, these indicators should be considered when the target mission sites are known as distribution of disease may be subject to population density or influenced by geography, climate or environmental factors. Approximately 65 indicators were then reviewed in respect to demographics and while characteristics such as age and gender are important; they do not contribute to calculating demand for medical services based on injury and disease. The remaining indicators were compared with the WHOSIS published list of 50 core healthcare indicators, which were again filtered to remove social and economic indicators not directly related to health, such as unemployment rates.

The 50 indicators were matched to ensure capture under the model demographic indicator worksheet. This worksheet serves as a general information source in mission planning efforts. In sum, the user is required to input information on the 55 standard statistical indicators. When the variable information is missing or not relevant, the user

leaves the field blank. Blank fields will not hinder the model workload staffing calculation and will appear as a “#VALUE!” in the final output. Entering zero is not advisable as unreported values do not indicate absence of disease rather it means that the prevalence or incidence is unknown.

The third critical input element of the model includes determining medical manpower productivity. Determining manpower productivity is based on historical clinical workload captured from the M-2 database. The model also uses manpower productivity RVU medical specialty benchmarks for productivity measurement. However, as identified in the Literature Review, ICDs are not linked directly with the RVU. The RVU is linked to the CPT. To capture RVUs as input for the model, a comprehensive list of all ICD codes used by the MHS was requested from Naval Medical Center, San Diego (NMCSD). NMCSD provided 13,590 MHS ICD-9 codes pulled directly from the M-2 database in January 2008. These ICD-9 codes represent all ICD-9 codes used to diagnose disease in the MHS.

2. Model Throughput

The model estimates the demand for basic health services using the standard statistical health indicator values to represent the health requirement per 1,000 patient encounters. As identified by Sphere, it is appropriate to utilize staffing estimates on population demand for health services based on 1,000 lives. The throughput translates input information in respect to country health need, types of medical treatment required to meet the need, to appropriate medical manpower to provide the treatment, to the number of providers scaled up to 1,000 patient encounters.

In the model, the statistical indicators have been associated with ICD-9 diagnosis codes that are linked to basic health care CPT treatment codes. These CPT codes are associated with the workload RVU measure which is used in the model to adjust country demand. See Appendix C for the statistical health indicators utilized to estimate health care demand in the model. Each ICD was matched to a corresponding statistical health indicator and clustered into nine categories: child health, dental, disease, family planning, fertility, maternal health, nutrition, optometry, and preventive health. A second data request by disease cluster to NMCSD for M-2 data focused on capturing diagnosis by

disease group, disease, primary procedure (CPT), patient encounters, associated RVU weight per procedure, and total RVU weight per encounter. The RVU weights were incorporated into the model to adjust the workload intensity of the country health demand obtained from the standard statistical indicators. In order to develop total RVU weights by disease and illness, the 13,590 ICD-9s from the M-2 database were linked to ICD-9 codes for the 55 standard statistical health indicators and potential 4,800 CPT codes. The CPT codes were pulled from the M-2 database by querying ICD-9 codes. The M-2 database query also provided the associated RVU value for each CPT code. The RVU values were aggregated as a total weight and used to ascertain the total workload for that disease category (RVU*base demand units).

In order to evaluate which CPTs reflect standard physician practice, an assumption was made that the broadest and most common procedures were appropriate to capture basic health services in the model. Physician productivity is based on Navy Medicine's 168 standard work hours per month. To allow flexibility to the end user in selecting the provider mix, the model is constructed using binary commands. The model assumes some medical professionals may possess credentials that allow them to treat a range of patients. For example, Family Practice physicians may be substituted for Pediatricians and OB/GYN providers. This is important as the annual provider benchmarks established as Navy Medicine Productivity Benchmarks will vary according to clinical specialty. The benchmark is published as an annual workload target. There are approximately 75 clinical specialties from medicine to dentistry. DoD HA guidance requires peacetime missions to remain within the scope of country healthcare capability. As such, specialty care was omitted from the model; however, all specialty benchmarks are available within the model.

Utilizing provider benchmarks requires conversion of annual provider RVU benchmarks to daily benchmarks. To convert the RVU benchmark, the total benchmark is divided by 168 hours which is the standard outpatient hours per medical provider. The 168 hours was annualized in order to develop an hourly provider relative value unit benchmark based on 7.5 hours per day. To calculate the total providers required by medical specialty. The model is scaled based on patient population of 250, 500, 750, to

1,000. With the end user selection of the provider type, the model calculates the total providers required per day based on the aggregated unmet medical demand of the country as identified by statistical health indicator. The following calculation is the primary calculation used in the model to derive estimated manpower requirements. See Appendix C for the complete list of calculations.

$$\text{Total \# providers per day} = \left(\frac{\text{Country's Demand * RVU}}{\left(\frac{\text{Annual Provider RVU Benchmark}}{\text{Annual Provider Work Hours}} \right) * 7.5\text{hrs}} \right) = \left(\frac{\text{Total Country Workload}}{\text{Daily Provider RVU Benchmark}} \right)$$

Figure 2. Medical Manpower Provider Calculation

3. Model Results: Outputs

The model results in two outputs. The first output is the estimated total providers per day by medical specialty. The provider calculation reflects the number of medical specialty providers up to 1,000 patient encounters which is subject to end users selection of the type of medical provider. The model scales the number of providers into population tier sizes that range from 250, 500, 750, to 1,000. The second output is the estimated number of support staff assigned to assist the providers based on Navy Medicine Provider Productivity FY09 benchmarks. These benchmarks recommend clinical support staff per provider full time equivalents. The model allows for end user adjustment to assigned support staff ratios for greater flexibility in planning to the operational environment.

For medical manpower mission planners, transparency of required resources to deliver care in the contextual environment is fundamental to operational planning. It guards against cannibalization of manpower assets particularly when there are multiple mission sites per day. Aligning manpower medical requirements to country health needs also reduces the effects of diminishing marginal returns resulting from ad hoc volunteer participation and improves operational efficiency.

4. Model Results: Outcomes

The model is designed to evaluate outcomes in respect to three elements. These elements include alignment to country health needs, measureable objectives, and partnership. To evaluate alignment to country need, a review of the model staffing estimations is recommended. Medical planners should check to ensure alignment with the summary sheet of the model. As identified in the Literature Review, humanitarian aid may have future unintended consequences that contribute to instability if the distribution of such aid is not carefully aligned to government control intervention programs. Specifically, the types of providers should be evaluated in respect to the results from the standard mission planning framework that aligns efforts between DoD HA guidance and USAID's 9 principles of development. DoD HA guidance and USAID's 9 Principles (Ownership, Capacity-Building, Sustainability, Selectivity, Assessment, Results, Partnership, Flexibility, and Accountability) were used as a guide to develop a series of questions to measure alignment. The following questions attempt to improve alignment between the DoD and USAID by creating a standard framework for mission planners:

- Have you identified primary local health officials and what role do they play in the mission?
- Do you know which medical technical skills and services align with country cooperative strategy?
- Can the medical service or transfer of skill carry forward in the future?
- Do medical services meet local medical requirements?
- Does the medical service delivery meet best practices and design for local conditions?
- Can you focus resources to clearly define measurable and strategically-focused objectives?
- Have you identified potential partners (government, community, donors, NGOs, private sector, international organizations, and universities)?
- Are core medical services identified and scalable to maximize efficiency?
- Is the standard data collection method incorporated into the mission?

Summary results of these questions are pulled from their respective worksheet field and compiled within the model summary sheet—providing an at-glance perspective of how organizationally aligned the humanitarian medical mission is to USAID and DoD HA standards. Such strategic alignment is inherently linked to a country level healthcare needs assessment, which drives the manpower medical planning model.

Measurable objectives can be developed from alignment to country control intervention programs at the basic healthcare level. These programs provide an opportunity to develop sustainable programs with measurable objectives that may be monitored by third-party organizations or partners who remain in the area long after the DoD mission. Core medical services may also be incorporated as standard operating procedure for each HA mission which reduces systematic variances in readiness and training. The model is designed to increase awareness of how standardization can improve data collection efforts that lead to measuring mission effectiveness.

In respect to partnerships, aligning manpower requirements to country healthcare demand is a step towards improving coordination with USAID and affiliated NGOs. When mission planners know the scope of medical services, they can evaluate manpower requirements against resources available and identify the gaps. Manpower gaps serve as a clear starting point for dialogue with partners such as the target country, USAID, and NGOs, to provide specific skills to augment the mission. Understanding the country health requirements in respect to available manpower assets required for mission execution promotes systematic improvements in mission effectiveness and staffing morale.

In conclusion, the model framework provides a rational approach to medical manpower planning to a country's health requirement. It serves as a stepping stone to align manpower resources and facilitate powerful opportunities for partnership. Such alignment creates broader understanding on how to increase health program capacity often found in sustainable programs. The model serves as an innovative solution to strengthen transformational efforts and reduce inefficiencies associated with the current AMD-driven manpower planning structure, while exposing synergistic and innovative programs that build capacity, promote sustainability, and cultivate partnerships.

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IV. RESULTS

To test the power of a demand driven manpower model a pilot test was conducted using data for the Republic of Kenya, a country located in eastern Africa. Using the model's standard statistical indicators, data was pulled in accordance with the model framework. To evaluate the unmet health demands of Kenya's approximate thirty four million people, data were collected for the requisite 55 health statistical indicators. The data values, obtained from WHOSIS, Global Health Atlas, and UNICEF databases, were inputted into the model and standardized into the base demand units, see Appendix C for the complete model. Appendix C also provides directions that guide medical mission planners through the following seven steps:

1. Select country of interest and review country health objectives
2. Completion of the Millennium Development Goal Status Worksheet
3. Query WHOSIS database for country specific data
4. Obtain UNICEF statistics on immunization coverage
5. Query Global Health Atlas for country specific data
6. Assign binary values for medical specialty responsibility
7. Assess for strategic alignment

The results obtained from the above seven steps on the Republic of Kenya are reported in accordance with the conceptual model framework. The results include outputs and outcomes.

1. Model Output: Estimated Medical Manpower Requirements

Figure 2 captures the summary report generated by the Cooperman_Houde Manpower Model. The information it provides includes: 1) key indicators utilized to determine the manpower requirements (Column D, Rows 7-61) , 2) the corresponding projected need per 1000 encounters (Column G, Rows 7-61), 3) the sum of relative value units to provide basic care for the most general of the associated diagnosis (Column H, Rows 7-61) , 4) the resulting estimated workload intensity for those projected per 1000 encounters (Column I, Rows 7-61), 5) the health care specialty designated to take the lead

in caring for those encounters (Columns J-R, Rows 7-61), 6) the resulting estimated manpower requirements for four population scenarios-- 1000, 750, 500, and 250 patients (Column D, Rows 7-61), and 7) a pie diagram showing the resulting distribution of health care services.

Take for example row 26. The indicator is “Children (age<10) blind due to Trachoma.” Given the data from Unicef’s database it was determined that for every 1000 encounters there will be potentially 300 children with Trachoma, a chronic bacterial infection that can lead to blindness if untreated. Making the assumption that an individual with Trachoma will receive an ophthalmology exam (worth 0.88 RVUs) and be educated on self-management (worth 0.02 RVUs if taught in a group of 5-8 patients) the conservative total workload to provide care for one Trachoma patient is 0.90 RVUs (cell H:26). Aggregating the RVU workload and multiplying it by the total projected number of 300 encounters results in a total workload of 270 RVUs (cell I:26). Thus, for every 1000 encounters in a 7.5 hour workday there is an estimated workload intensity of 270 RVUs related to Trachoma. That total workload intensity is then divided by the daily RVU benchmark of the health care service designated to care for that indicator.

Selection of the benchmark is dependent upon the specialty selected by the user. The model requires the end user to assign the medical specialty to the indicator. The model requires the end user to follow the binary approach of assigning a “1” in the cell to denote the desired specialty, otherwise the model defaults to zero values indicating the absence of that medical specialty provider. The specialty is listed at the top of the column in the worksheet. Once the specialty is assigned to the indicator, the model assumes that medical specialty will provide the corresponding health care for the target population. In this example, the user of the model selected Ophthalmology (note the “1” in cell O:26) as the service assigned to care for Trachoma patients. Ophthalmology has a daily benchmark of 27.53 RVUs per provider. The total workload of 270 RVUs divided by 27.53 RVUs equals 9.8. Rounding this number up, the manpower requirement for Ophthalmologists is 10 (cell M:65).

This method is repeated for each indicator and aggregated into an estimated manpower requirement. This total is comprised of the number of physicians per

specialty and the associated number of clinical support staff. For Kenya, to treat approximately 1,000 patients the model estimates a manpower requirement of 103 total physicians and 207 clinical support staff for a mission occurring over a seven and a half hour time period. The “Summary Overview” contained in Appendix C provides the aggregated medical specialty service mix for Kenya. This mix includes: 54% pediatrics, 24% Family Practice, 10% Ob-Gyn, 9% Ophthalmology, and 3% Internal medicine/Infectious disease. These proportions would change according to how the end user assigns medical specialties to the various statistical indicators. In addition for Kenya, no assignments were made for oral maxillofacial surgery or general dentistry which could be a modular addition to the model.

2. Model Output: Estimated Manpower Clinical Support

The second output is the support staffing estimation. The model assumes that for every one full time equivalent (FTE) Ophthalmologist, the model estimates 2.2 clinical support staff per provider. Using the model we estimate a need for 9.8 providers per 1,000 patient encounters and the corresponding clinical support staff is approximately 22 FTEs (cell M:71). The Bureau of Medicine and Surgery business guidelines define clinical support staff as those directly involved in patient care by assisting the provider in their clinical activities. This includes nurses, hospital corpsman, and technicians. The model provides for the use of non provider educators, however, there is no standard RVU benchmark. The model includes an estimated RVU value of 10.00 which resulted in 37 educators per 1,000 patients. This RVU value should be evaluated by nurse educators and notionally adjusted.

Summarized Overview

	D	G	H	I	J	K	L	M	N	O	P	Q	R
1	Kenya												
2	Population (in thousands) total	34,256											
3	Population (thousands), 2005, under 18	17,214											
4	Population (thousands), 2005, under 5	5,736											
5													
		For every 1000 encounters there is the following potential need	Sum RVU weights	Total Work load Intensity	Pediatrics / Adolescent	Family Practice	Int Med / Infectious Disease	OB / GYN	Oral & Maxillofacial Surgery	Ophthalmology	Comprehensive Dentistry	Preventive Medicine	Public Health Education
6	Health: Adults												
7	Incidence of tuberculosis (per year)	61.25	0.59	36.14	0	0	1	0	0	0	0	0	0
8	Adult high blood pressure (females)	108	0.46	49.68	0	1	0	0	0	0	0	0	0
9	Adult high blood pressure (males)	118	0.46	54.28	0	1	0	0	0	0	0	0	0
10	Incidence of tuberculosis (per year)	6.41	0.46	2.95	0	0	0	0	0	0	0	0	0
11	Antenatal care (have not had at least four visits)	480	0.46	220.80	0	0	0	1	0	0	0	0	0
12	Contraceptive (not using)	607	0.02	12.14	0	0	0	1	0	0	0	0	0
13	Female genital mutilation/cutting (age 15-49yrs)	#VALUE!	0.00	#VALUE!	0	1	0	0	0	0	0	0	0
14	Male obesity	63	0.24	78.12	0	1	0	0	0	0	0	0	0
15	Female obesity	0.03	0.73	0.73	0	0	1	0	0	0	0	0	0
16	Cholera cases	331	0.73	241.63	0	1	0	0	0	0	0	0	0
17	Yellow fever cases (urban)												
18	Health: Infants & Children												
19	Infants with low birth weight	100	0.24	24.00	1	0	0	0	0	0	0	0	0
20	Children (age <5yrs) moderately & severely underweight	200	0.24	48.00	1	0	0	0	0	0	0	0	0
21	Children (age <5yrs) stunted for age	358	0.24	85.92	1	0	0	0	0	0	0	0	0
22	Children (age <5yrs) with suspected pneumonia	180	0.63	113.40	1	0	0	0	0	0	0	0	0
23	Children (0-14 yrs) living with HIV	4.38	0.73	3.20	0	0	1	0	0	0	0	0	0
24	Children (age <5) with acute respiratory infection & fever	455	0.46	209.30	1	0	0	0	0	0	0	0	0
25	Children (age <5) with diarrhoea receiving oral rehydration & continued feeding	330	0.67	221.10	1	0	0	0	0	0	0	0	0
26	Children (age <10) blind due to Trachoma	300	0.9	270.00	0	0	0	0	0	1	0	0	0
27	Children (age <5) dying due to HIV/AIDS	146	0.02	2.92	0	0	0	0	0	0	0	0	0
28	Children (age <5) dying due to measles	32	0.63	20.16	1	0	0	0	0	0	0	0	0
29	Children (age <5) dying due to malaria	136	0.63	85.68	1	0	0	0	0	0	0	0	0
30	Children (age <5) dying due to injuries	27	0.46	12.42	1	0	0	0	0	0	0	0	0
31	Children (age <5) dying due to other causes	53	1.46	77.38	1	0	0	0	0	0	0	0	0
32	Polio/yellows	5.84E-05	0.83	0.00	0	0	1	0	0	0	0	0	0
33	Potential Education & Prevention Opportunities and Information												
34	Neonatal causes of death	242	0.02	4.84	0	0	0	0	0	0	0	0	1
35	Child HIV/AIDS	146	0.02	2.92	0	0	0	0	0	0	0	0	1
36	Diarrhoeal diseases	165	0.02	3.30	0	0	0	0	0	0	0	0	1
37	Measles	32	0.02	0.64	0	0	0	0	0	0	0	0	1
38	Malaria	136	0.02	2.72	0	0	0	0	0	0	0	1	0
39	Pneumonia	189	0.02	3.98	0	0	0	0	0	0	0	0	1
40	Injuries	27	0.02	0.54	0	0	0	0	0	0	0	0	1
41	"Other" causes of childhood death	53	0.02	1.06	0	0	0	0	0	0	0	0	1
42	Vitamin A supplementation	370	0.02	7.40	0	0	0	0	0	0	0	1	0
43	Iodized salt intake	90	0.02	1.80	0	0	0	0	0	0	0	1	0
44	Use of treated mosquito nets	950	0.02	19.00	0	0	0	0	0	0	0	1	0
45	Adult HIV	61.25	0.02	1.23	0	0	0	0	0	0	0	0	1

Summarized Overview

	D	G	H	I	J	K	L	M	N	O	P	Q	R
		For every 1000 encounters there is the following potential need	Sum RVU weights	Total Work load Intensity	Pediatrics / General Adolescent	Family Practice	Int Med / Infectious Disease	OB / GYN	Oral & Maxillofacial Surgery	Ophthalmology	Comprehensive Dentistry	Preventive Medicine	Public Health Education
6		Health: Adults											
46		HIV (topics for men)	530	10.60	0	0	0	0	0	0	0	0	1
47		HIV (topics for women)	660	13.20	0	0	0	0	0	0	0	0	1
48		Contraceptive methods	607	12.14	0	0	0	0	0	0	0	0	1
49		Condoms (topics for men)	750	15.00	0	0	0	0	0	0	0	0	1
50		Condoms (topics for women)	750	15.00	0	0	0	0	0	0	0	0	1
51		Antenatal care	120	2.40	0	0	0	0	0	0	0	0	1
52		Immunizations: Potential Need											
53		BCG	80	13.60	0	0	0	0	0	0	0	1	0
54		DTP1	100	17.00	0	0	0	0	0	0	0	1	0
55		DTP3	200	34.00	0	0	0	0	0	0	0	1	0
56		HepB3	200	34.00	0	0	0	0	0	0	0	1	0
57		Hib3	200	34.00	0	0	0	0	0	0	0	1	0
58		MCV	230	39.10	0	0	0	0	0	0	0	1	0
59		Pol3	230	39.10	0	0	0	0	0	0	0	1	0
60		PAB	260	44.20	0	0	0	0	0	0	0	1	0
61		Yellow Fever	#VALUE!	#VALUE!	0	0	0	0	0	0	0	1	0
62		Kenya											
63													
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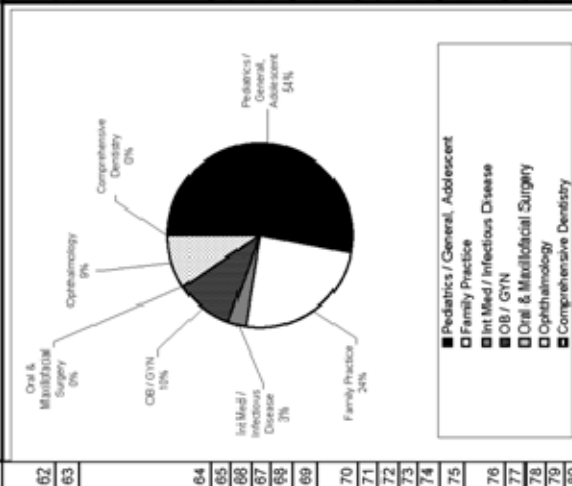


Figure 3. Medical Manpower Model Estimate: Kenya Results [Cooperman_Houde Model, 2008)

3. Model Outcomes: Alignment to Country Health Requirements

Assessment of Kenya's progress towards achieving MDG goals is mixed. Overall Kenya has made progress in improving access to primary education however, suffers the economic, political, and social challenges associated with poverty and high population densities in urban settings. MDG program goals and status are as follows:

- MDG 1 includes eradicating extreme poverty and hunger—Kenya has made insufficient progress.
- MDG 2 and 3, universal primary education and promoting gender equality—Kenya has demonstrated efforts that remain on consistent with UNICEF monitoring.
- MDG 4, reduction in child mortality—Kenya has made no progress
- MDG 5, significant improvements have been made in maternal health.
- MDG 6 targets decreasing prevalence of HIV/Aids and combating other diseases such as malaria; however, population growth in urban areas and shortage of health workers in rural areas are major challenges. A lack of health workers and the institutional capacity to deliver millions of dollars of aid investment across Africa are major barriers to health service coverage in rural areas
- MDG 7 demonstrates that development programs are on-track towards improving access to drinking water but there is not progress in sanitation. Tuberculosis is identified as a problem exacerbated by population density and traditional community practices such as sharing of food.
- MDG 8, while important, remains beyond the scope of this model. The pilot test demonstrates percentage of alignment through the assignment of binary values of 1 and 0 as planners answer the nine alignment questions.

To further assess the issue of alignment, the following information was obtained from Kenya's mission objectives and strategies in response to the models specific alignment questions:

1. Have you identified primary local health officials and what role do they play in the mission? Yes, from Kenya's Country Cooperation Strategy available for the period 2002 through 2005. Regional Director, WHO, Regional Office for Africa. The Director, Office of Development Planning, USAID. Additional in-country organizations include the Swedish International Development Agency, United Nations Program on Aids, United Nations Development Assistance Framework, United Nations Drug Control Program, United Nations Population Fund, United Nations High Commissioner for Refugees, United Nations Children's Fund, University of Nairobi, the United States Agency for International Development, World Bank, World Food Program, and World Health Organizations.

2. Do you know which medical technical skills and services align with country cooperative strategy? Yes, from Kenya's Country Cooperation Strategy infant mortality and child mortality rates are increasing, see Figure 3. In addition, the top ten diseases are identified as ear infection, rheumatism, eye infections, urinary tract infections, accidents, intestinal worms, diarrhea, skin disease, acute respiratory illness, malaria and other diseases. Malaria is identified as the leading cause of morbidity and mortality for distribution of these top ten diseases see Figure 4.

3. Can the medical service or transfer of skill carry forward in the future? Yes, identification of basic health education programs that increase capacity or align with country efforts by medical specialty can be developed. Also, Kenya maintains a Ministry of Health with two national hospitals, eight provincial hospitals, and 70 district hospitals.

4. Do medical services meet local medical requirements? Yes, the model incorporates only Family Practice, Pediatric, Optometry, and Environmental Health specialties.

5. Does the medical service delivery meet best practices, and design for local conditions? Yes, all medical care is provided in accordance to standards of

humanitarian medical care for each medical specialty; however, without a proper site evaluation, some services may not be appropriate due to the lack of required equipment and facilities.

6. Can you focus resources to clearly define measurable and strategically-focused objectives? Yes, the Country Cooperative Strategy identifies the Directly Observed Treatment Short Course (DOTS) to combat tuberculosis and sanitation education at the community level as a national strategy. The Ministry of Health has been decentralizing administration of the health programs shifting the administrative oversight to the community level. This endeavor requires an increase in capacity to strengthen the community's institutional framework for delivering health services that can be supported by Sub-Saharan Africa policy and other non-national objectives which includes education for reproductive and child health. Kenya identifies these as major contributors to maternal death, often exacerbated by traditional practices such as female genital mutilation.

7. Have you identified potential partners (government, community, donors, NGOs, private sector, international organizations, and universities)? Yes, USAID, Office of Sustainable Development is responsible for managing U.S. NGOs development programs operating within the region.

8. Are core medical services identified and scalable to maximize efficiency? Yes, manpower requirements are based on basic core health services scaled by population from 250, 500, 750, and 1,000 patient encounters per day.

9. Is the standard data collection method incorporated into the mission? Yes, MHS ICD-9 codes with associated basic CPT codes are provided to capture workload for each patient encounter; however, medical specialties should review the codes to improve data quality.

In summary, the model's manpower estimation strategically aligns to the country's existing health intervention programs. Particular attention should be paid to child and maternal health care. Target programs that enhance capacity include immunizations, preventive medicine, and nutrition.

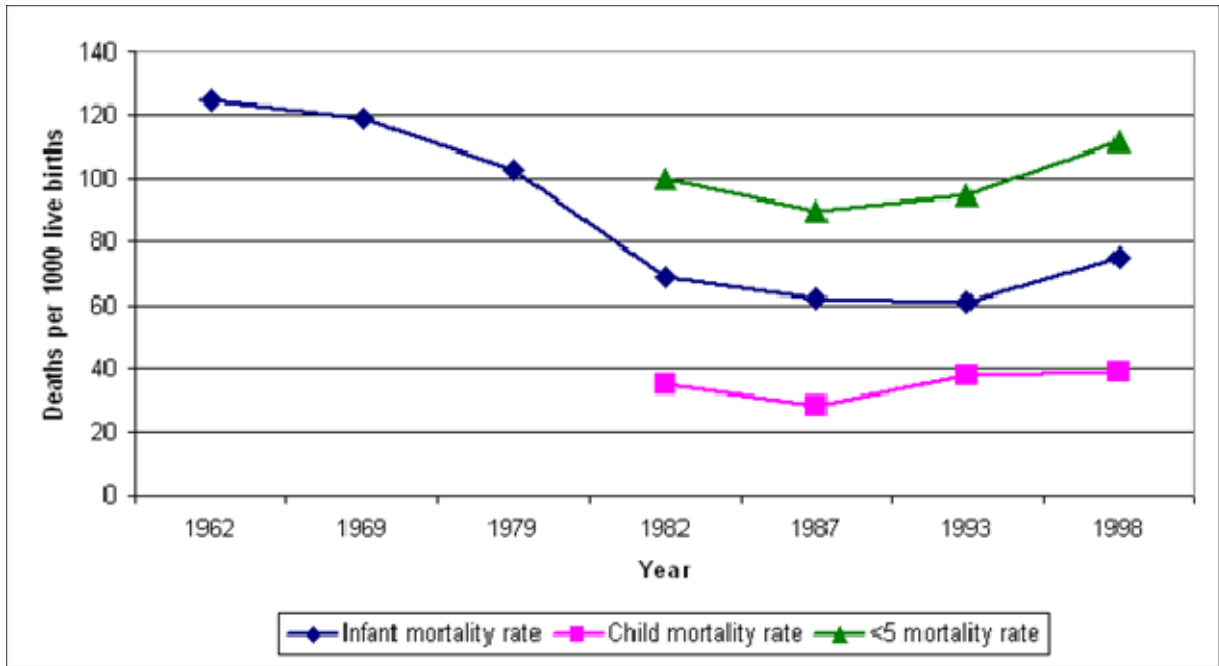


Figure 4. Trends of Selected Health Indicators, 1962-1998, [World Health Organization, Country Cooperation Strategy, 2003]

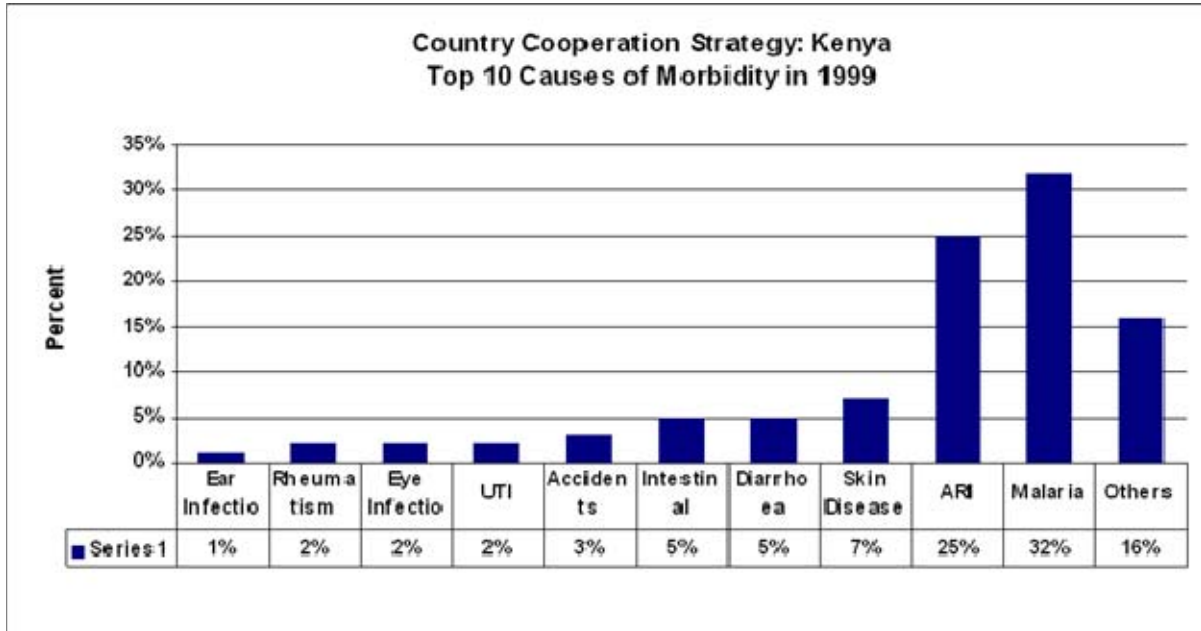


Figure 5. Top 10 Causes of Morbidity in 1999 [World Health Organization, Country Cooperation Strategy, 2003]

4. Model Outcomes: Measurable Objectives

For Kenya, standard statistical indicators are used to evaluate country progress towards broad based goals. There are no known Navy Medicine standards that may be applied to measure the success of objectives. Development of standardized data collection for humanitarian medical missions is highly recommended.

5. Model Outcomes: Partnership

From the manpower model, it is clear that Navy Medicine cannot meet all the staffing needs to treat a population up to 1,000 per day for a large-scale peacetime mission. However, using the model, planners can identify the gaps in staffing. Known staffing gaps serves as the basis for dialogue with volunteer organizations regarding the types of medical services required rather than missions driven by volunteer availability. Additional support may be found with USAID. USAID considers Kenya a country in a developing state therefore, the provision of basic humanitarian healthcare is appropriate. Countries identified as developing have indigenous capability and an existing network of NGOs. NGOs may be willing to share their limitations in carrying out their specific mission with the DoD. NGO programs that are tied to long run sustainability, but are limited by the myriad of confounding factors such as geography or climate, may be appropriate for partnering with the DoD.

Partnership fosters communication among all organizations and institutions and is necessary to harmonize health interventions and leverage capacity to weather emerging crisis. This is particularly true for regions of the world where health-specific disease clusters are known. For example, in 2007 the Horn of Africa experienced regional flooding. David Okello, WHO Representative for Kenya, observed the potential destabilizing effects of regional floods in this area, and in response authored a WHO concept paper that called upon WHO partners to collaborate on three strategic objectives:

- Reduce immediate risk of excess mortality and morbidity due to outbreaks of communicable diseases and loss of access to health care in flood affected areas.
- Prepare for all foreseeable contingencies during the coming six months; increased political tensions and social distress, population movements, new weather vagaries, epidemics, etc.

- Strengthen public health program such as polio control, so that they are able to operate in an increasingly difficult environment. (2007, p.1)

The infrastructure of Kenya's health system is a vital element for understanding the distribution of services and access to care. Demographic information is not directly included in the manpower calculations but are critical to manpower planning and site selection. Demographics may influence NGO location and activities and thereby influence the Navy's ability to cultivate partnerships. Partnership is important to unity of effort particularly when surging existing capacity to promote future health stability.

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V. DISCUSSION

Alignment of medical manpower humanitarian mission planning to country health care needs is the essential ingredient for transforming wartime medical assets for use in peacetime operations. This is fundamental because combat related injuries and illnesses are often proportionately different than those encountered during peacetime. Symbolic returns to American reputation will not alleviate the underlying structural issues often associated with poverty. Therefore, we cannot afford to waste valuable resources on short term gains in what is a long term commitment to achieving stability and security throughout the world. The cultivation of partnerships today will alleviate future hardships associated with conflict and disaster tomorrow. Partnerships have the potential to expand the economic scope of national resources needed in a cooperative security environment. The humanitarian manpower model provides a logical path to estimating manpower requirements by directly linking personnel to workload. However, the model is designed on the premise of partnership with the target country in order to alleviate only the broadest diseases and illnesses associated with poverty. Humanitarian medical initiatives beyond a country's capability are less likely to lead to sustainable outcomes. In addition, global efforts are concentrated at this level; therefore, they present the greatest opportunities for partnership. In conclusion, we believe the model is the starting point for at least five improvements:

- First, aligning the mission to the country need improves use of human capital assets and systematically aligns Navy Medicine readiness programs such as education and training
- Second, providing planners with a logical framework to make sense of the vast information enables construction of a country health profile to target health services
- Third, understanding country needs focuses manpower programming efforts
- Fourth, identifying staffing gaps critical to the mission

- Fifth, consistent dialogue with primary partners, such as USAID, on the types of medical services and staffing

1. Recommendations

There are three recommendations: 1) adopt a country-centric approach to HA medical manpower planning, whether the Cooperman_Houde Model or another, 2) improve efficiency and effectiveness by identifying and prioritizing core medical services that align to the desired mission objectives and 3) standardize data collection efforts for the identified services in order to subsequently measure HA medical program effectiveness.

2. Limitations

Reliable and comprehensive information pertaining to country or regional health demographics is not always available. Recent efforts to capture data on births, deaths, disease, and government spending on healthcare in many World Health Organization membership countries have improved but are still not optimal. Frequently, births and deaths remain unreported for reasons that may range from the lack of formal reporting infrastructure to cultural practices. Where data are captured, it is often incomplete and, due to numerous confounding factors, may not be used for comparative purposes. Household surveys have been the traditional medium for capturing demographic, fertility, and mortality information and are used to develop indicators such as mortality rates, nutrition rates, contagious and non-chronic disease incidence rates. Household survey timing for data collection is an important consideration. In many cases, data collection endeavors are resource intensive and occur over extended periods of time. Often, current data may represent a period of five years, which may not reflect the current country health profile. However, improvements due to economic changes or social and political policies are generally accepted influencers that occur over longer time horizons. Likewise, it is also accepted that environmental disaster and conflict rapidly degrade the health situation of a country and potentially set back development effort initiatives. Many of the projects and country control intervention programs experience marginal changes in response to the environment over time. As such, the most recent data

available should be used in the model to establish a baseline estimate for manpower requirements but subsequent dialog with host nation representatives and partners such as USAID agents are required to adjust manpower estimates.

Pre- and post-comparisons may be misleading in evaluating DoD Humanitarian impact within a target country as other environmental factors that impact the countries overall well-being cannot be ignored. It is difficult to separate health program impact on disease without considering government capacity, economic prosperity or other confounding factors such as population shifts and demographic characteristics. Therefore, this data cannot serve as a measure of outcomes for these missions. While recent efforts in data collection and the adoption of the DHS Measure Survey by most countries allows for a more-detailed perspective on the target country, as mentioned there are constant environmental or confounding factors that may change these health statistics beyond the deployment and interventions with HA missions.

The absence of standardized data collection for basic medical services limits the power of the manpower model. The model provides a first step in developing measurable objectives but is contingent upon the identification and prioritization of basic health service programs. The returns to standardized data collection include optimization of all support programs that directly impact the overall effectiveness and efficiency of delivering humanitarian medical care. Moreover, measureable objectives provide a means to capture any variance and improve manpower readiness and training. They may also easily transfer from one country, such as Kenya, to other developing countries. This is important for those health programs that combat disease such as immunizations, malaria, and DOTs programs because management of these diseases have long-term effects on a population's health. Left untreated these diseases may exacerbate the potential for conflict and destabilization.

3. Future Considerations

The model uses RVU benchmarks that contain outpatient and inpatient medical visits. A more accurate approach would be to carve out inpatient workload by measuring clinical specialty workload based on Manpower Estimate (MEPRS) data. In addition, the

model relies on basic health statistical indicators predominately associated with the burden of contagious and preventable diseases because in most developing countries, medical care that exceeds country capability is not sustainable. For example, treatment of non-contagious diseases such as high blood pressure may require pharmaceutical intervention which most aid recipients can not afford. While such diseases should not be ignored, the issue of sustainable health care programs remains at large. This is evident by the overwhelming number of people in the world who suffer from malnutrition. Future medical mission planning should adopt research and development initiatives improve operational effectiveness while reaching the target population.

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APPENDIX A: POLICY GUIDANCE FOR FY08 OVERSEAS HUMANITARIAN ASSISTANCE

UNCLASSIFIED//

SUBJECT: POLICY GUIDANCE FOR FY08 OVERSEAS HUMANITARIAN ASSISTANCE

COMMANDS PASS TO COMMAND SURGEONS, PLANS AND OPERATIONS OFFICE (3/5).
USCOMEUR PLS PASS TO APPROPRIATE AFRICOM OFFICE(S).STATE PASS TO USAID

REFERENCES:

A. SECTIONS 402, 2557, AND 2561, TITLE 10, UNITED STATES CODE B. JULY
2007 SECRETARY OF DEFENSE SECURITY COOPERATION GUIDANCE C. FEDERAL
ACQUISITION REGULATION, PART 2.101, DEFINITION OF MICRO-PURCHASE THRESHOLD

1. SUMMARY. THIS MESSAGE FROM THE OFFICE OF THE ASSISTANT SECRETARY OF
DEFENSE FOR GLOBAL SECURITY AFFAIRS (PARTNERSHIP STRATEGY) PROVIDES AND
REFINES THE POLICY GUIDANCE FOR HUMANITARIAN ASSISTANCE. END SUMMARY.

2. THE FOLLOWING GOVERNS THE EXECUTION OF DOD'S HUMANITARIAN ASSISTANCE
(HA) PROGRAM. THESE GUIDELINES ARE NOT INTENDED TO BE ALL-INCLUSIVE; THEY
CANNOT ANTICIPATE EVERY TYPE OF PROJECT THAT WILL BE SUBMITTED BY THE
COMBATANT COMMANDS (COCOM) OR EVERY SITUATION FOR WHICH DOD
HUMANITARIAN ASSISTANCE MIGHT BE APPROPRIATE. HOWEVER, THEY PROVIDE A
TOOL WITH WHICH THE COMMANDS CAN EVALUATE THE APPROPRIATENESS OF
POTENTIAL PROJECTS. THE DEFENSE SECURITY COOPERATION AGENCY (DSCA) WILL
ISSUE PROGRAM MANAGEMENT GUIDANCE UNDER SEPARATE COVER. THE COCOMS ARE
RESPONSIBLE FOR ISSUING SPECIFIC IMPLEMENTING INSTRUCTIONS TO SUBORDINATE
ELEMENTS AND ARE ENCOURAGED TO DRAFT A HUMANITARIAN
ASSISTANCE STANDARD OPERATING PROCEDURE MANUAL.

3. HUMANITARIAN ASSISTANCE GENERAL GUIDANCE:

A. DOD HUMANITARIAN ASSISTANCE (HA) IS A SIGNIFICANT TOOL FOR ACHIEVING U.S.
SECURITY OBJECTIVES AND REFLECTS AMERICAN VALUES. THE SECRETARY OF
DEFENSE HAS PROMULGATED SECURITY COOPERATION GUIDANCE THAT APPLIES
DIRECTLY TO DOD HUMANITARIAN ASSISTANCE ACTIVITIES. EMPLOYING ALL THE
SECURITY COOPERATION TOOLS AT DOD'S DISPOSAL TO PROSECUTE THE GLOBAL WAR
ON TERRORISM (GWOT) REMAINS THE HIGHEST PRIORITY FOR DOD SENIOR LEADERSHIP.
ALL COMBATANT COMMANDS ARE URGED TO GIVE PRIORITY TO PROJECTS THAT
ADDRESS GWOT OBJECTIVES AND MUST ENSURE THAT THE SELECTION, PRIORITIZATION,
AND SUSTAINMENT PLANS FOR THEIR HUMANITARIAN ASSISTANCE ACTIVITIES ARE
CONSISTENT WITH THIS GUIDANCE AND INTEGRATED INTO THEIR THEATER SECURITY
COOPERATION PLANS.

B. IMPORTANT COMPLEMENTARY SECURITY GOALS THAT HA SHOULD AIM TO ACHIEVE
INCLUDE THOSE OF DIRECT BENEFIT TO DOD, SUCH AS IMPROVING DOD VISIBILITY,
ACCESS, AND INFLUENCE IN A PARTNER NATION OR REGION; GENERATING LONG-TERM
POSITIVE PUBLIC RELATIONS AND GOODWILL FOR DOD; AND PROMOTING
INTEROPERABILITY AND COALITION-BUILDING WITH FOREIGN MILITARY AND CIVILIAN
COUNTERPARTS.. JUST AS IMPORTANT ARE INDIRECT BENEFITS TO USG SECURITY

INTERESTS THAT ARISE FROM IMPROVING BASIC LIVING CONDITIONS OF THE CIVILIAN POPULACE IN A COUNTRY/REGION SUSCEPTIBLE TO TERRORIST/INSURGENT INFLUENCE; ENHANCING THE LEGITIMACY OF THE HOST NATION BY IMPROVING ITS CAPACITY TO PROVIDE ESSENTIAL SERVICES TO ITS POPULACE, INCLUDING RESPONDING TO DISASTERS AND OTHER CRISES; AND BUILDING/REINFORCING SECURITY AND SUSTAINABLE STABILITY IN A HOST NATION OR REGION.

C. HA MUST COMPLEMENT, BUT NOT DUPLICATE OR REPLACE, THE WORK OF OTHER U.S. GOVERNMENT AGENCIES (E.G., USAID, DEPARTMENT OF HEALTH AND HUMAN SERVICES) OR OTHER HOST NATION AUTHORITIES, INTERNATIONAL ORGANIZATIONS, OR LOCAL OR INTERNATIONAL NONGOVERNMENTAL ORGANIZATIONS. PROJECTS MUST BE CONSISTENT WITH, AND COMPLEMENTARY TO, THE USG DEVELOPMENT PLAN AS OUTLINED BY USAID AND THE DEPARTMENT OF STATE. INTERAGENCY COORDINATION, ESPECIALLY WITH USAID, IS IMPORTANT AND MUST BE CONDUCTED PRIOR TO PROJECT APPROVAL.

D. TO ENSURE APPROPRIATE PRIORITIZATION OF PROJECTS WITHIN EACH COCOM AOR, HA PROGRAM MANAGERS MUST PROVIDE A RANKED LISTING OF ALL PROJECTS AT THE TIME OF ANNUAL SUBMISSION TO DSCA FOR REVIEW. THIS LIST SHOULD REFLECT EACH PROJECT'S RELATIVE IMPORTANCE IN THE COCOM'S SECURITY COOPERATION PLANS. PROJECT PRIORITIZATION SHOULD DERIVE FROM SECURITY COOPERATION GUIDANCE, THEATER SECURITY COOPERATION GUIDANCE, AND COMPLEMENTARY PRIORITIES ESTABLISHED BY THE COMBATANT COMMANDER. OUT-OF-CYCLE SUBMISSIONS SHOULD ALSO BE ASSIGNED A RANKING AND INCORPORATED INTO THE OVERALL LIST.

E. ACCOUNTABILITY: SOME PROJECTS ARE CARRIED OUT IN COUNTRIES WHERE IT IS PRUDENT TO SET UP PARTICULARLY STRINGENT ARRANGEMENTS TO ENSURE THE PROPER END-USE OF PROVIDED EXCESS PROPERTY/GOODS/EQUIPMENT. IN SUCH CASES, COMMAND PROGRAM MANAGERS AND COUNTRY TEAMS MUST DETERMINE THE MOST EFFICIENT AND EFFECTIVE WAY TO VERIFY APPROPRIATE END-USE OF HA MATERIALS AND INCLUDE THIS IN THE PROPOSAL.

F. SUSTAINABILITY: ALL HA PROJECTS MUST BE SUSTAINABLE BY THE HOST NATION AFTER DIRECT US MILITARY SUPPORT HAS ENDED. FOR CAPACITY BUILDING PROJECTS, EMPHASIS SHOULD BE ON KNOWLEDGE/SKILLS TRANSFER, NOT SIMPLY DONATION OF SUPPLIES OR EQUIPMENT, BUT SHOULD PRIMARILY FOCUS ON THE BASIC HUMANITARIAN NEEDS OF THE CIVILIAN POPULATION. ALL PROJECT SUBMISSIONS WILL INCLUDE A PLAN OF ACTION FOR HOST NATION PROJECT SUSTAINABILITY, AS WELL AS CONFIRMATION OF HOST NATION WILLINGNESS AND CAPABILITY TO SUSTAIN IT. AS NOTED IN PARA 3.C., OTHER USG AGENCIES MAY ASSIST WITH SUSTAINABILITY OF PROJECTS. TO MAXIMIZE SUSTAINABILITY, PROJECTS SHOULD USE ACCEPTED LOCAL OR INTERNATIONAL STANDARDS (SUCH AS SPHERE ? WWW.SPHEREPROJECT.ORG) RATHER THAN U.S. STANDARDS, WHEN APPROPRIATE.

G. AFTER-ACTION REPORTING: THE OVERSEAS HUMANITARIAN ASSISTANCE SHARED INFORMATION SYSTEM (OHAIS) WILL GENERATE A BLANK AFTER-ACTION REPORT (AAR) AT THE TIME OF PROJECT SUBMISSION. THE IN-COUNTRY PROJECT POC MUST COMPLETE THE AAR IN OHAIS WITHIN 30 DAYS OF PROJECT TURNOVER TO THE RECIPIENT. NO PROJECT CAN BE MARKED AS COMPLETE IN OHAIS UNTIL THE AAR IS POSTED. FOR ALL PROJECTS THAT EXCEED \$10,000, THE RESPONSIBLE SAO OR COCOM WILL POST A FOLLOW-UP AAR IN OHAIS ONE YEAR FOLLOWING PROJECT COMPLETION TO DOCUMENT SUSTAINMENT AND METRICS. THE AFTER-ACTION REPORT SHOULD CONFIRM THAT THE PROJECT IS STILL OPERATING AS INTENDED, OUTLINE ANY

MEASURES OF EFFECTIVENESS THAT CAPTURE THE PROJECT'S IMPACT LOCALLY, AND VERIFY THAT THE HOST NATION OR OTHER PARTNERS ARE SUSTAINING IT. FAILURE TO PERFORM IMMEDIATE AND ONE-YEAR AFTER ACTION REPORTS WILL GENERALLY RESULT IN SUSPENSION OF OVERSEAS HUMANITARIAN DISASTER AND CIVIC AID (OHDACA) FUNDS FOR FUTURE PROJECTS IN THAT COUNTRY. IF EXTENUATING CIRCUMSTANCES PREVENT AFTER ACTION REPORTS FROM BEING COMPLETED, THEN EXCEPTIONS WILL BE CONSIDERED ON A CASE-BY-CASE BASIS.

H. METRICS: AT A MINIMUM, PROJECT NOMINATIONS SHOULD CONTAIN A BASIC PLAN FOR MEASURING EFFECTIVENESS THAT INCLUDES HA PERFORMANCE (PROCESS) INDICATORS (E.G., SCHOOL/CLINIC CONSTRUCTED; EP SUPPLIES DELIVERED; FIRST RESPONDER TRAINING COMPLETED) AND HA OUTCOME (IMPACT) INDICATORS (E.G., NUMBER OF STUDENTS ATTENDING A SCHOOL; PERCENTAGE OF PERSONS TRAINED WHO USE THAT TRAINING; EMERGENCY OPERATIONS CENTER/STANDARD OPERATING PROCEDURES USE DURING DISASTER RESPONSE). FURTHER, THE MEASURES OF EFFECTIVENESS RELATING TO TSC/COUNTRY CAMPAIGN OBJECTIVES SHOULD BE STATED IN THE PROJECT NOMINATION. AN IMPORTANT AIM OF HA PROJECTS, ASIDE FROM PROVIDING ASSISTANCE WHERE AND WHEN IT IS NEEDED, IS TO BUILD MILITARY RELATIONSHIPS/COOPERATION AND TO CONTRIBUTE TO US SECURITY OBJECTIVES. WHERE APPROPRIATE, COCOM HA MANAGERS AND COUNTRY TEAM REPRESENTATIVES SHOULD SEEK ASSISTANCE WITH METRICS FROM THE HOST NATION, OTHER USG AGENCIES, NGOS, IOS, OR ACADEMIC INSTITUTIONS IN THE HOST NATION OR THE UNITED STATES.

I. EQUAL ACCESS: HA PROJECTS ARE INTENDED TO BENEFIT THE CIVILIAN POPULATION OF THE HOST COUNTRY. HA MUST BE DISTRIBUTED BASED ON AN OBJECTIVE ASSESSMENT OF NEEDS, NOT ON ETHNIC OR RELIGIOUS CONSIDERATIONS. FOR PROJECTS THAT, AFTER COMPLETION, WILL BE OPERATED OR SUSTAINED BY A RELIGIOUS GROUP, PROJECT NOMINATIONS MUST INCLUDE CONFIRMATION THAT ALL SEGMENTS OF THE LOCAL POPULATION WILL HAVE EQUAL ACCESS TO THESE FACILITIES.

J. FOREIGN MILITARIES: HA PROJECTS SHOULD NOT DIRECTLY BENEFIT FOREIGN MILITARIES OR PARAMILITARY GROUPS, SUCH AS THROUGH PROVISION OF COMBAT OR COMBAT-RELATED TRAINING AND MATERIEL. (FOR THESE PURPOSES, OTHER ACQUISITION MEANS, SUCH AS FOREIGN MILITARY SALES (FMS), AND OTHER TRAINING AVENUES, SUCH AS INTERNATIONAL MILITARY EDUCATION AND TRAINING (IMET) SHOULD BE PURSUED.) HOWEVER, IN CERTAIN CIRCUMSTANCES, SUCH AS DISASTER PREPAREDNESS PROJECTS, FOREIGN MILITARIES MAY BE INVOLVED SO LONG AS THE ULTIMATE BENEFICIARY IS THE CIVILIAN POPULACE AND THE MILITARY UNIT HAS A HUMANITARIAN ASSISTANCE OR DISASTER RESPONSE MISSION. FOR EXAMPLE, IF A FOREIGN MILITARY UNIT'S MISSION, AS DESIGNATED BY THE HOST NATION, IS TO BE A PRIMARY RESPONDER IN THE EVENT OF A DISASTER, THEN TRAINING OR EQUIPPING MEMBERS OF THAT MILITARY UNIT TO RESPOND MORE EFFECTIVELY MAY BE JUSTIFIED. ALL SUCH PROPOSALS MUST CLEARLY SPELL OUT THE RATIONALE FOR SUCH PROJECTS AND THE SCOPE OF TRAINING, AND MUST ALSO LINK THE BENEFIT TO THE CIVILIAN POPULACE.

SAFEGUARDS/ VERIFICATION PROCEDURES MUST BE IN PLACE TO ENSURE THAT EQUIPMENT FURNISHED IS USED ONLY FOR THE SPECIFIC HA PURPOSE INTENDED. APPROPRIATE HUMAN RIGHTS VERIFICATION MUST OCCUR BEFORE CONDUCTING HA TRAINING ACTIVITIES WITH HOST NATION MILITARY ELEMENTS.

IF A FOREIGN MILITARY UNIT WITH A HUMANITARIAN ASSISTANCE OR DISASTER RESPONSE MISSION IS TO BE TRAINED, OTHER TRAINING AVENUES, SUCH AS INTERNATIONAL MILITARY EDUCATION AND TRAINING (IMET), SHOULD BE PURSUED

FIRST. EXCESS PROPERTY PROVIDED TO FOREIGN MILITARIES MUST BE ROUTED THROUGH THE STATE DEPARTMENT, MUST BE INTENDED TO AID CIVILIANS IN THE EVENT OF A DISASTER, AND MUST NOT HAVE DUAL-USE APPLICATIONS (SUCH AS CERTAIN VEHICLES, BOATS, OR RADIOS). ANY SUCH ASSISTANCE PROVIDED TO FOREIGN MILITARIES MUST HAVE APPROPRIATE SAFEGUARDS/VERIFICATION PROCEDURES IN PLACE TO ENSURE IT IS USED ONLY FOR THE SPECIFIC HA PURPOSE INTENDED.

K. PARTNERING: TWO CRITICAL COMPONENTS OF SECURITY COOPERATION ARE INTEROPERABILITY AND CAPACITY-BUILDING. TO FOSTER THESE GOALS, HA PROJECTS MUST PARTNER WITH THE HOST NATION, AND SHOULD SEEK TO PARTNER WITH INTERNATIONAL ORGANIZATIONS, OTHER DONOR NATIONS, LOCAL AND INTERNATIONAL NONGOVERNMENTAL ORGANIZATIONS, THE PRIVATE SECTOR, OR THIRD PARTY ALLIED/COALITION MILITARIES, AND USG AGENCIES (E.G., STATE, USAID, AGRICULTURE, HEALTH AND HUMAN SERVICES) AS APPROPRIATE, TO CONDUCT HA PROJECTS THAT BENEFIT THE CIVILIAN POPULACE AND ENHANCE THE HOST GOVERNMENT'S ABILITY TO PROVIDE ESSENTIAL SERVICES FOR ITS POPULACE. PARTNERING WITH THE HOST NATION MILITARY IS DISTINCT FROM DIRECTLY BENEFITING THE MILITARY. IN PARTNERING ON AN HA PROJECT, THE FOREIGN MILITARY WOULD WORK WITH DOD TO BENEFIT THE CIVILIAN POPULACE DIRECTLY, THUS PROMOTING INTEROPERABILITY, CAPACITY-BUILDING, AND ENHANCING THE IMAGE OF HOST NATION GOVERNMENT IN THE EYES OF THE LOCAL POPULACE.

L. STRATEGIC COMMUNICATION: TWO VITALLY IMPORTANT, BUT DIFFERENT, AUDIENCES EXIST FOR HA PROJECTS. FIRST, HA PROJECTS SHOULD SEND A CONSISTENT AND SUSTAINED MESSAGE TO THE HOST NATION CIVILIAN POPULACE THAT THEIR GOVERNMENT IS CAPABLE OF, AND WILLING TO, PROVIDE ESSENTIAL SERVICES TO THEM, AND/OR IS CAPABLE OF RESPONDING TO CRISES. SECOND, HA PROJECTS SHOULD SEND A TANGIBLE SIGNAL WITHIN THE HOST NATION, REGIONALLY AND EVEN GLOBALLY, THAT DOD AND THE USG RESPOND TO HUMANITARIAN NEEDS AND HAVE AN INTEREST IN THE WELL-BEING OF THOSE WHO ARE IN NEED. COMMAND HA PROGRAM MANAGERS SHOULD COMMUNICATE TO ALL HA PROJECT PLANNERS AND IMPLEMENTERS THE NEED FOR APPROPRIATE PUBLIC AFFAIRS ACTIONS. WHERE APPROPRIATE, PROJECTS SHOULD INCLUDE SOME TANGIBLE, VISIBLE, AND SUBSTANTIVE MARKER OF BOTH DOD AND HOST NATION INVOLVEMENT, PREFERABLY WITH THE HOST NATION IN THE LEAD (CORNERSTONE, PLAQUE, SIGN, ETC.). TO THE EXTENT POSSIBLE, DOD HA EFFORTS SHOULD BE COORDINATED WITH ? AND SUPPORT ? BROADER U.S. PUBLIC DIPLOMACY EFFORTS. PROJECTS SHOULD BE DESIGNED TO GENERATE A SUSTAINED POSITIVE IMPACT ON THE CIVILIAN POPULATION AND SUSTAINED GOODWILL, NOT A SINGLE PHOTO OPPORTUNITY, WHERE STRATEGIC MESSAGES AND PROJECT INTENTIONS COULD BE UNDERMINED BY LACK OF FOLLOW-UP.

4. HUMANITARIAN ASSISTANCE PROJECT-SPECIFIC GUIDANCE:

A. IN ADDITION TO ADVANCING U.S. SECURITY INTERESTS, DOD HA PROJECTS MUST ALSO ADDRESS LEGITIMATE HUMANITARIAN NEEDS OF THE TARGETED POPULATION. PROJECTS MUST BE DESIGNED IN COORDINATION WITH HOST NATION REPRESENTATIVES AND USAID TO GENERATE A SUSTAINED HUMANITARIAN IMPACT. HEALTH PROJECTS MUST EMPHASIZE PUBLIC HEALTH CAPACITY-BUILDING (INCLUDING IMPROVING HOST NATION DISEASE SURVEILLANCE SYSTEMS). HEALTH PROJECTS MUST BE COORDINATED WITH THE COMMAND SURGEON'S OFFICE, FROM INITIAL PROJECT DESIGN THROUGH EXECUTION AND FOLLOW-UP. UNITS UNDERTAKING MEDICAL ACTIVITIES GENERALLY MUST ENSURE THEY DO NOT SIGNIFICANTLY EXCEED THE STANDARDS OF CARE ALREADY PROVIDED BY THE HOST NATION. PROVIDING CARE THAT SIGNIFICANTLY EXCEEDS LOCAL STANDARDS CAN

HAVE A NEGATIVE EFFECT ON THE LOCAL HEALTH CARE INFRASTRUCTURE ONCE THE U.S. HA PROVIDERS HAVE DEPARTED. THESE EFFECTS CAN RANGE FROM POPULAR EXPECTATIONS OF SIMILAR CARE FROM LOCAL HEALTH CARE PROVIDERS, EXPECTED RETURN VISITS BY U.S. PROVIDERS, AND LACK OF SUSTAINABILITY FOR CARE PROVIDED. DETRIMENTAL EFFECTS ON THE CIVILIAN POPULATION AND A POTENTIAL DECLINE IN THE PERCEPTION OF THE USG MAY OCCUR SHOULD ANY OF THESE EFFECTS MATERIALIZE.

B. CAPACITY-BUILDING ACTIVITIES INVOLVE THE TRANSFER OF TECHNICAL KNOWLEDGE OR SKILLS TO INDIVIDUALS OR INSTITUTIONS SO THAT THEY ACQUIRE THE LONG-TERM, INDEPENDENT ABILITY TO ESTABLISH EFFECTIVE POLICIES AND DELIVER COMPETENT AND EFFECTIVE ESSENTIAL SERVICES (SUCH AS SAFE DRINKING WATER, SANITATION SYSTEMS, PUBLIC HEALTH, ELEMENTARY AND SECONDARY EDUCATION, AND CRISIS/DISASTER RESPONSE). EMPHASIS SHOULD BE PLACED ON KNOWLEDGE/SKILLS TRANSFER, NOT SIMPLY DONATION OF SUPPLIES OR EQUIPMENT.

NEW EQUIPMENT PURCHASES ARE PERMITTED ONLY ON AN EXCEPTIONAL BASIS BECAUSE THEY ARE GENERALLY INCONSISTENT WITH EFFORTS TO MAXIMIZE THE RETURN ON DOD'S RESOURCES. ADDITIONALLY, NEW EQUIPMENT PURCHASES MUST NOT EXCEED THE HOST NATION'S ABILITY TO MAINTAIN AND REPAIR THE EQUIPMENT, OR EXCEED THE LOCAL STANDARDS. EXAMPLES OF APPROPRIATE PROJECTS INCLUDE THE DEVELOPMENT OF HOST NATION ORGANIZATIONAL STRUCTURES TO RESPOND TO MANMADE AND NATURAL DISASTERS, THE PRE-POSITIONING OF DISASTER RELIEF SUPPLIES, OR THE ESTABLISHMENT OF SURVEILLANCE SYSTEMS THAT PROVIDE AN EARLY WARNING OF DISEASE OUTBREAKS.

ON AN EXCEPTIONAL BASIS, PROJECTS THAT GO BEYOND BASIC HUMANITARIAN NEEDS WILL BE APPROVED IF THEY CONTRIBUTE IN A DEMONSTRABLE MANNER TO SECURITY AND STABILITY IN A HOST NATION. EXAMPLES OF ACTIVITIES THAT MIGHT FALL INTO THIS CATEGORY INCLUDE LIMITED IMPROVEMENTS TO A LOCAL ROAD OR BRIDGE TO ENABLE ESSENTIAL COMMERCE IN AN AT-RISK REGION OR MAKING REPAIRS TO BASIC INFRASTRUCTURE IN A DESTITUTE AREA.

C. PARTICIPATION OF U.S. MILITARY FORCES: ALL HA PROJECTS ? INCLUDING EXCESS PROPERTY PROJECTS ? SHOULD MAXIMIZE VISIBLE U.S. MILITARY PARTICIPATION TO ENSURE THAT THE PROJECTS ARE EFFECTIVE SECURITY COOPERATION TOOLS. ACTIVE DOD PARTICIPATION IMPROVES THE PROSPECTS FOR DEVELOPING CHANNELS OF INFLUENCE AND ACCESS, POTENTIALLY PROVIDES OPERATIONAL READINESS BENEFITS, AND GENERATES UNIQUE TRAINING OPPORTUNITIES. DOD'S ROLE MUST NOT BE REDUCED TO ONLY PROVIDING FUNDING.

D. CONSTRUCTION PROJECTS: CONSTRUCTION PROJECTS SHOULD BE BASIC IN NATURE AND SHOULD GENERALLY NOT EXCEED \$500,000 PER PROJECT. PROPOSALS FOR PROJECTS EXCEEDING \$500,000, PROVIDED WITH SUFFICIENT JUSTIFICATION, WILL BE CONSIDERED ON A CASE-BY-CASE BASIS. ?PROJECT SPLITTING,?

DIVIDING A COSTLY CONSTRUCTION PROJECT INTO VARIOUS SEGMENTS TO KEEP IT UNDER THE \$500,000 LIMIT, IS NOT AUTHORIZED. FOR CONSTRUCTION PROJECTS, U.S. MILITARY PERSONNEL WILL?AT A MINIMUM?CONDUCT THE INITIAL SITE SURVEY, PROVIDE PERIODIC MONITORING OF THE PROJECT (IN CASES IN WHICH MORE DIRECT PROJECT SUPERVISION IS NOT FEASIBLE), AND CONDUCT AN AFTER ACTION EVALUATION OF THE COMPLETED PROJECT.

E. MINIMAL COST HA PROJECTS MAY BE CONDUCTED WITHOUT FORMAL NOMINATION OR APPROVAL BY DSCA. COSTS FOR ANY HA PROJECT OR ACTIVITY ARE CONSIDERED MINIMAL IF THEY ARE \$10,000 OR LESS. THOSE PROJECTS MAY BE APPROVED BY THE

COCOM, BUT MUST STILL BE ENTERED INTO OHASIS FOR TRACKING AND REPORTING PURPOSES WITH KEYWORD MINIMAL COST

F. EXCESS PROPERTY (EP): NON-LETHAL EP MAY BE PROVIDED BOTH AS PLANNED HA PROJECTS AND IN RESPONSE TO REQUESTS FOR DISASTER/EMERGENCY RELIEF.

EP MUST NOT HAVE ANY DUAL USE APPLICATION. COCOM HA MANAGERS HAVE ACCESS TO THE WORLDWIDE HA EP INVENTORY IN OHASIS. COCOM HA MANAGERS SHOULD CONSULT THE INVENTORY AND WORK WITH WAREHOUSE MANAGERS TO DETERMINE HOW BEST TO MEET REQUIREMENTS. CARE MUST BE TAKEN THAT THE RECIPIENT CAN OPERATE AND MAINTAIN DONATED PROPERTY. AS REQUIRED BY LAW, ALL EP DONATIONS ARE TRANSFERRED FROM DOD TO THE AMERICAN EMBASSY IN COUNTRY, AS THE REPRESENTATIVE OF THE SECRETARY OF STATE, FOR FURTHER DISTRIBUTION.

G. CONTRACTING: FOR HA PROJECTS REQUIRING CONTRACTING EFFORT, EACH COMMAND IS RESPONSIBLE FOR OBTAINING CONTRACTING SUPPORT EITHER INTERNALLY OR THROUGH ANOTHER USG ORGANIZATION. ONLY CONTRACTING OFFICERS ARE QUALIFIED TO OBLIGATE THE USG VIA CONTRACT. UNLESS HA PERSONNEL POSSESS A CONTRACTING OFFICER'S WARRANT, THEY ARE NOT AUTHORIZED TO SIGN HA-RELATED CONTRACTS. CONTRACTING OFFICERS MAY USE PROCEDURES OTHER THAN COMPETITIVE PROCEDURES ONLY AS AUTHORIZED BY LAW AND THE FEDERAL ACQUISITION REGULATION (FAR). A MICRO-PURCHASE IS AN ACQUISITION OF SUPPLIES OR SERVICES USING SIMPLIFIED ACQUISITION PROCEDURES FOR AN AGGREGATE AMOUNT THAT DOES NOT EXCEED \$3,000 OR, FOR ACQUISITION OF SERVICES SUBJECT TO THE SERVICE CONTRACT ACT OF 1965, AS AMENDED, DOES NOT EXCEED \$2,500 (REF C).

H. OWNERSHIP OF DOD-CONSTRUCTED FACILITIES: OWNERSHIP OF DOD-CONSTRUCTED FACILITIES SHOULD BE TRANSFERRED TO THE HOST NATION THROUGH THE COUNTRY TEAM. NON-GOVERNMENTAL OR OTHER PRIVATE ORGANIZATIONS MAY NOT RECEIVE TITLE TO A SCHOOL, CLINIC, OR OTHER BUILDING CONSTRUCTED AS A DOD HA PROJECT. SUCH ORGANIZATIONS MAY OPERATE IN DOD-CONSTRUCTED FACILITIES, BUT FORMAL OWNERSHIP OF THESE FACILITIES MUST REMAIN WITH AN ENTITY OF THE HOST NATION GOVERNMENT.

PROPOSALS MUST BE CLEAR IN THIS REGARD.

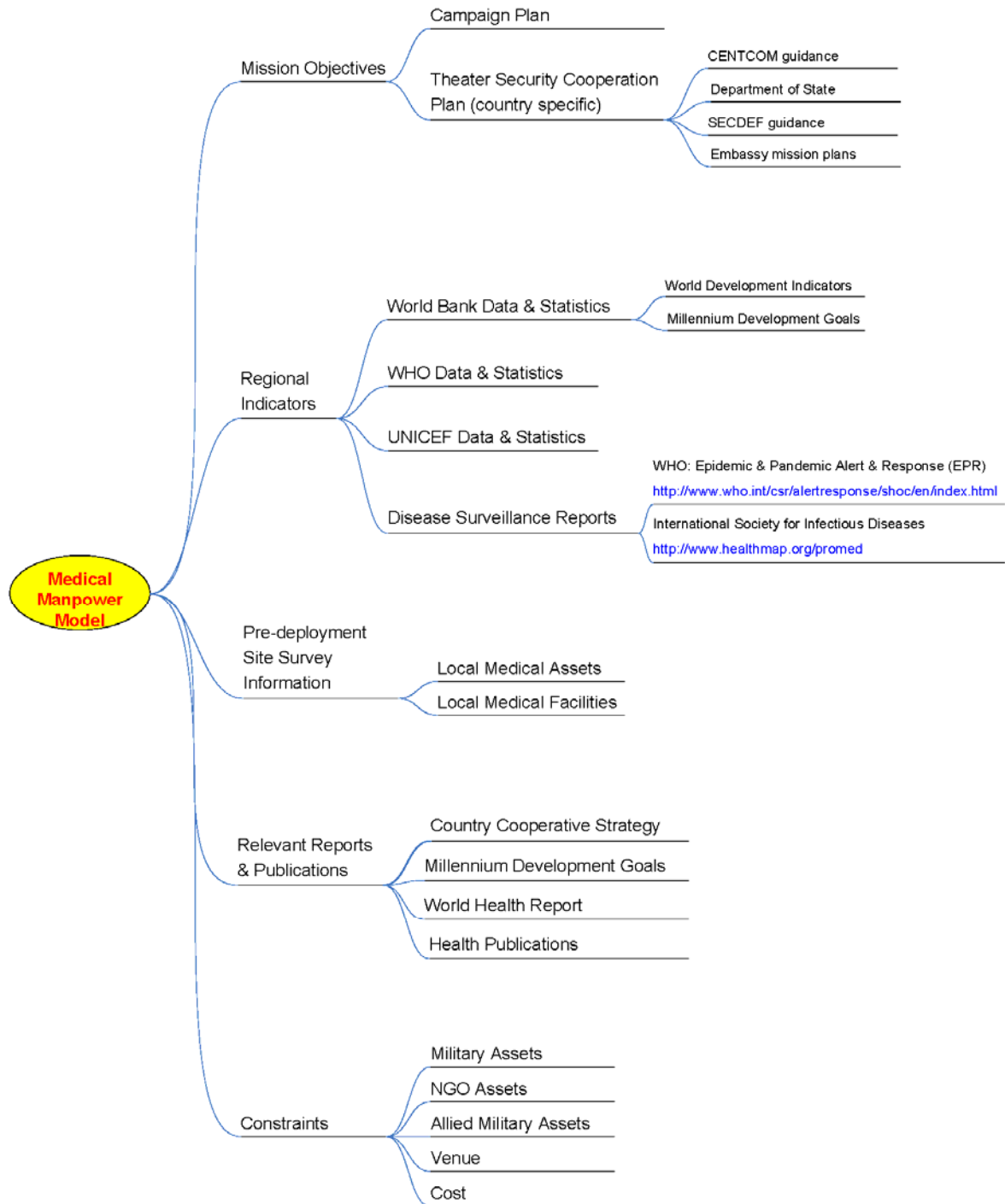
5. HUMANITARIAN ASSISTANCE TRANSPORTATION GUIDANCE: NGOS AND CHARITIES MAY REQUEST TRANSPORTATION OF THEIR PRIVATELY DONATED HUMANITARIAN MATERIEL THROUGH THE DENTON OR FUNDED TRANSPORTATION PROGRAMS. THE DENTON PROGRAM IS A SPACE-AVAILABLE PROGRAM FOR PRIVATELY DONATED MATERIAL ONLY AND IS ADMINISTERED BY USAID. THE FUNDED TRANSPORTATION PROGRAM PROVIDES TRANSPORTATION FOR CARGO THAT MEETS BASIC HUMANITARIAN NEEDS, APPLIES TO BOTH PRIVATE DONATIONS AS WELL AS USG MATERIEL (I.E., DISASTER RESPONSE, EP SHIPMENTS), AND IS FUNDED OUT OF OHDACA.

INDEPENDENT COCOM FUNDING FOR TRANSPORTING SUCH MATERIEL FOR USE IN CONJUNCTION WITH HA PROJECTS IS NOT AUTHORIZED EXCEPT IN CASES WHERE A COMMANDER IN THE IMMEDIATE VICINITY OF A DISASTER IS TAKING STEPS TO SAVE LIVES.

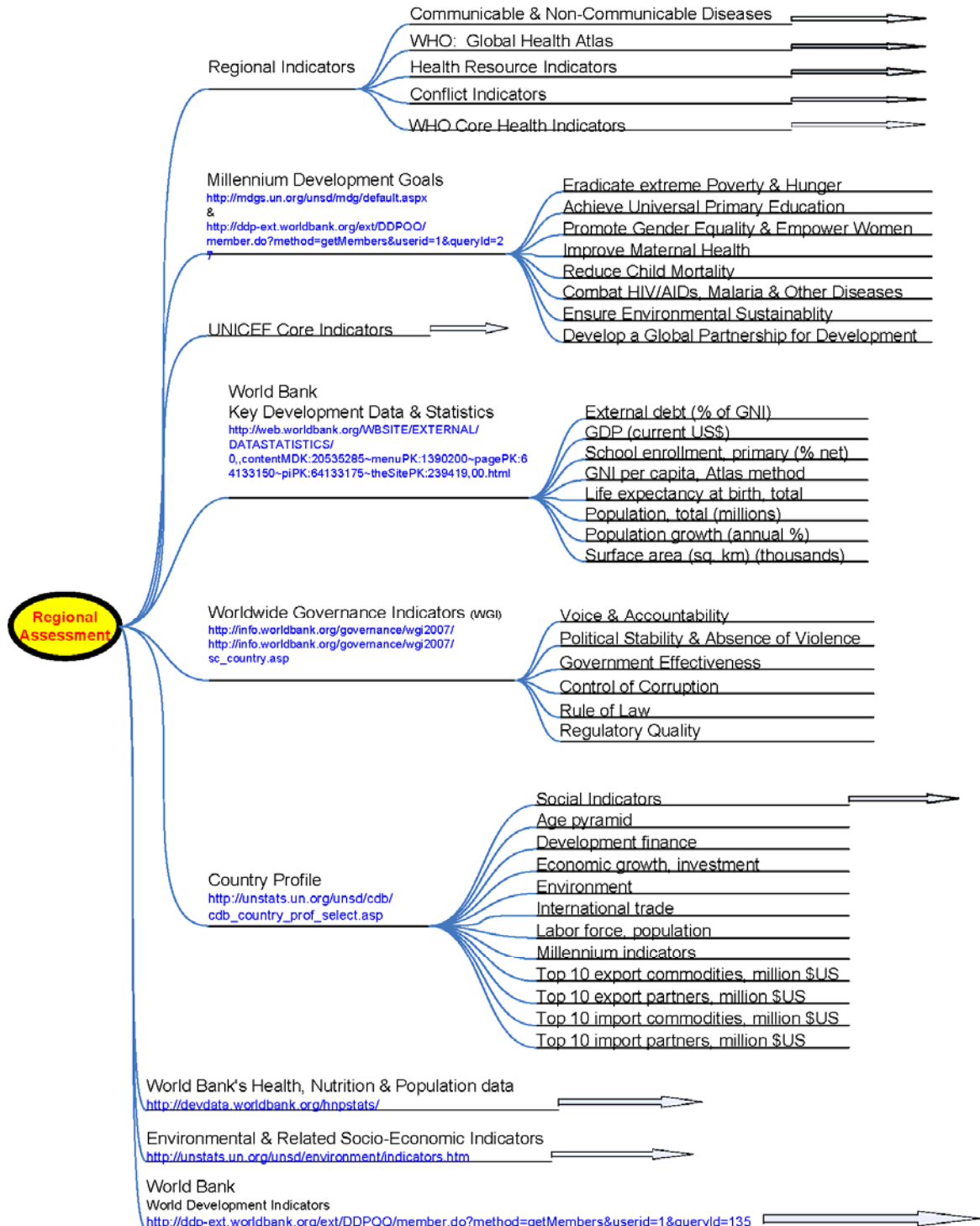
6. COMBATANT COMMANDERS' REQUESTS FOR LIMITED PERSONNEL SUPPORT FOR PROGRAM MANAGEMENT SHOULD BE INCLUDED IN THEIR ANNUAL BUDGET SUBMISSIONS.

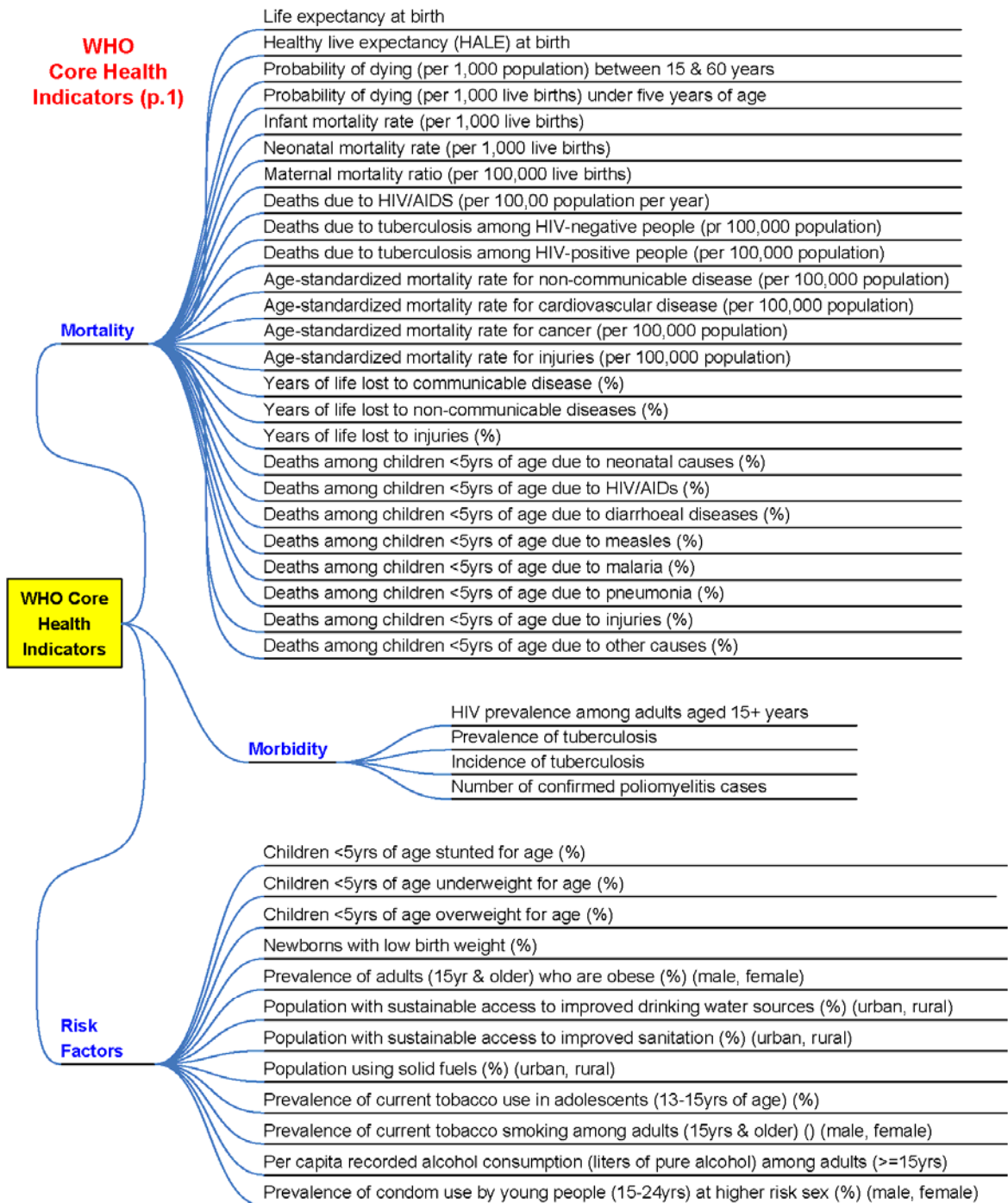
7. POINT OF CONTACT: OASD(GSA): MICHAEL MCNERNEY, DIRECTOR, INTERNATIONAL CAPACITY BUILDING (703) 697-0777, DSN 227-0777.

APPENDIX B: STATISTICAL HEALTH INDICATOR AND INFORMATION MAP



Arrow denotes continuation on another page



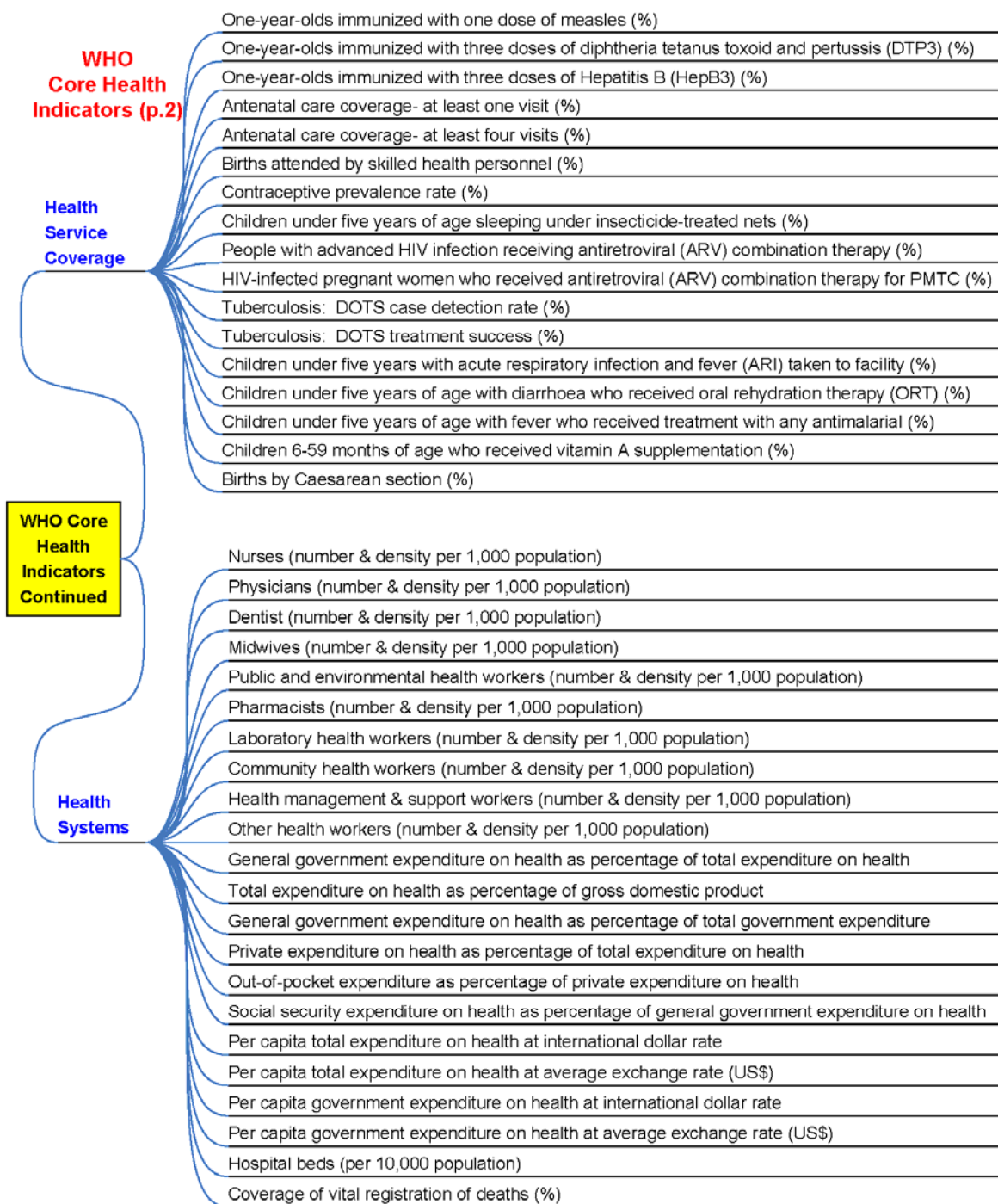


Variables obtained from:

World Health Organization (WHO Statistical Information System (WHOSIS))

Core Health Indicators

http://www.who.int/whosis/database/core/core_select.cfm

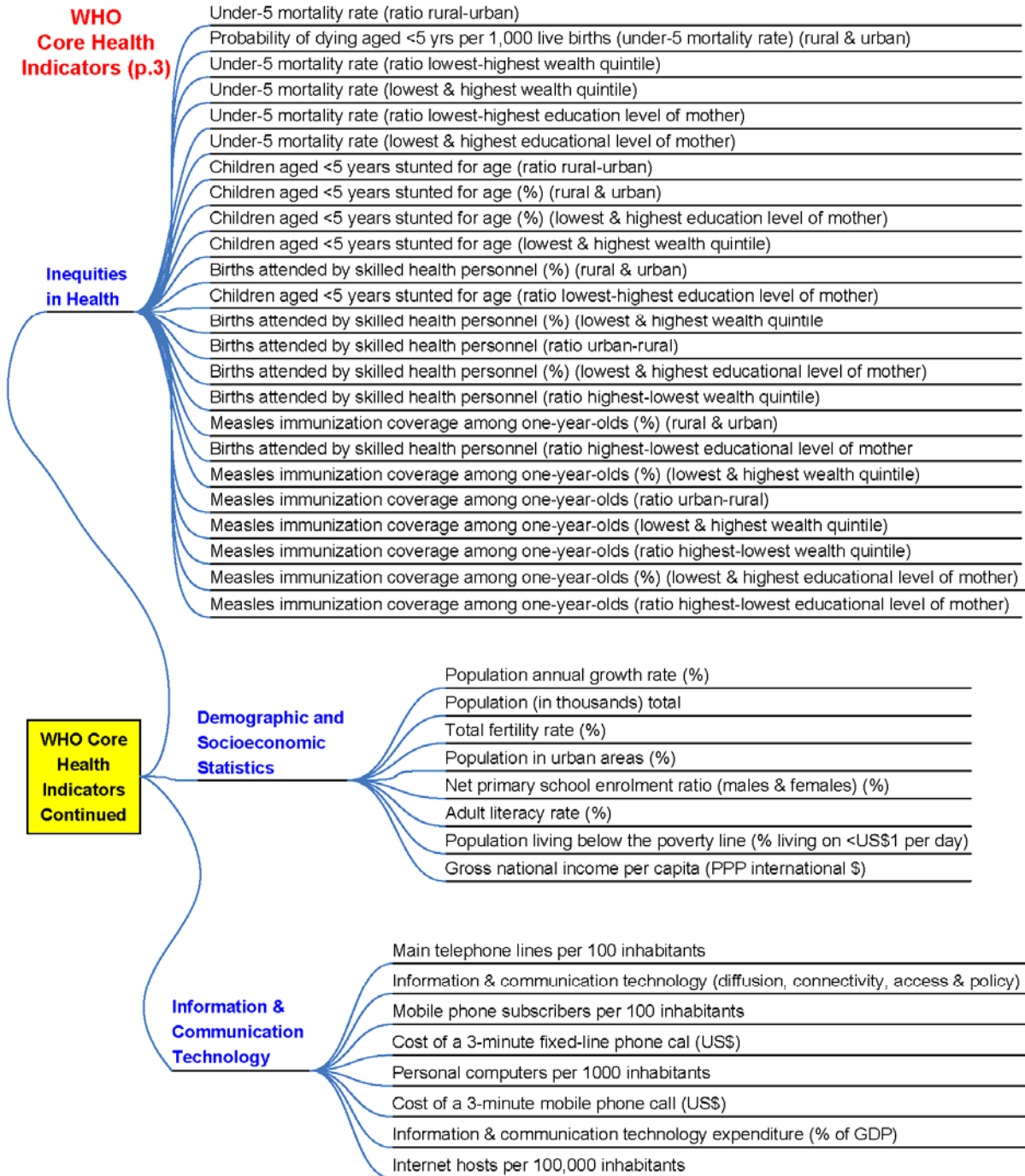


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Core Health Indicators

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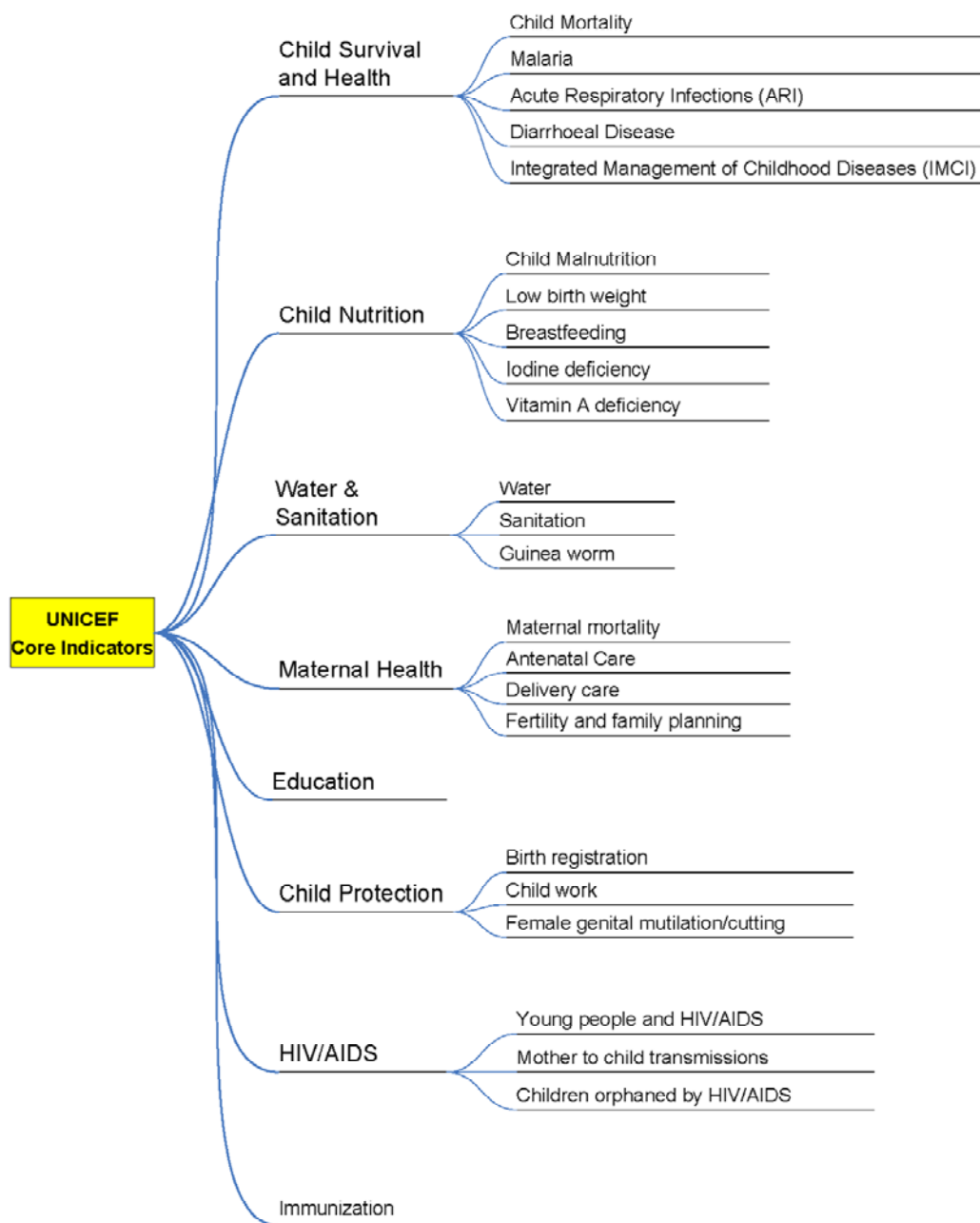


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World Health Organization (WHO Statistical Information System (WHOSIS))

Core Health Indicators

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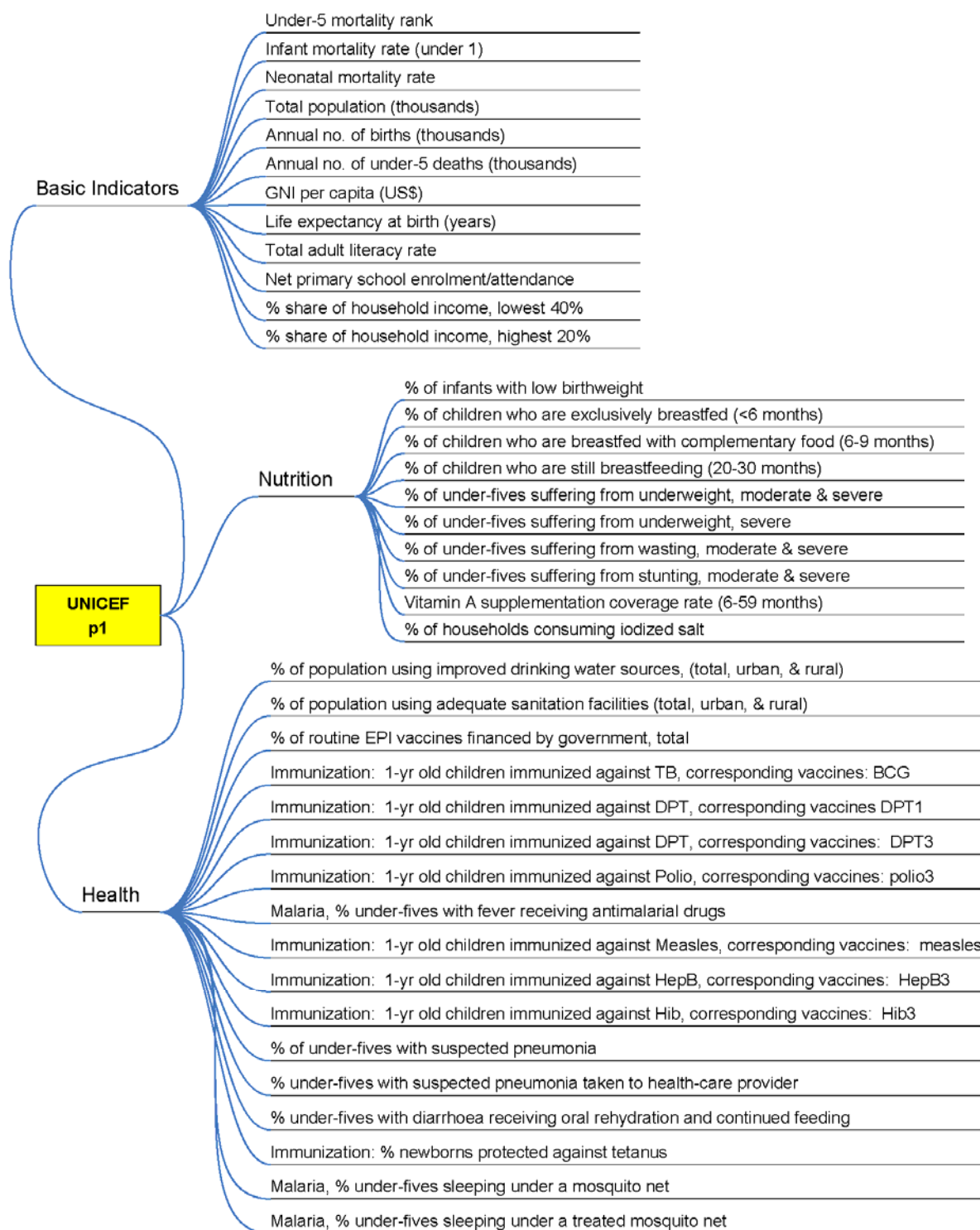
Variables obtained from:

UNICEF

Monitoring and statistics http://www.unicef.org/statistics/index_24296.html

http://www.unicef.org/statistics/index_countrystats.html

http://www.unicef.org/infobycountry/stats_popup1.html

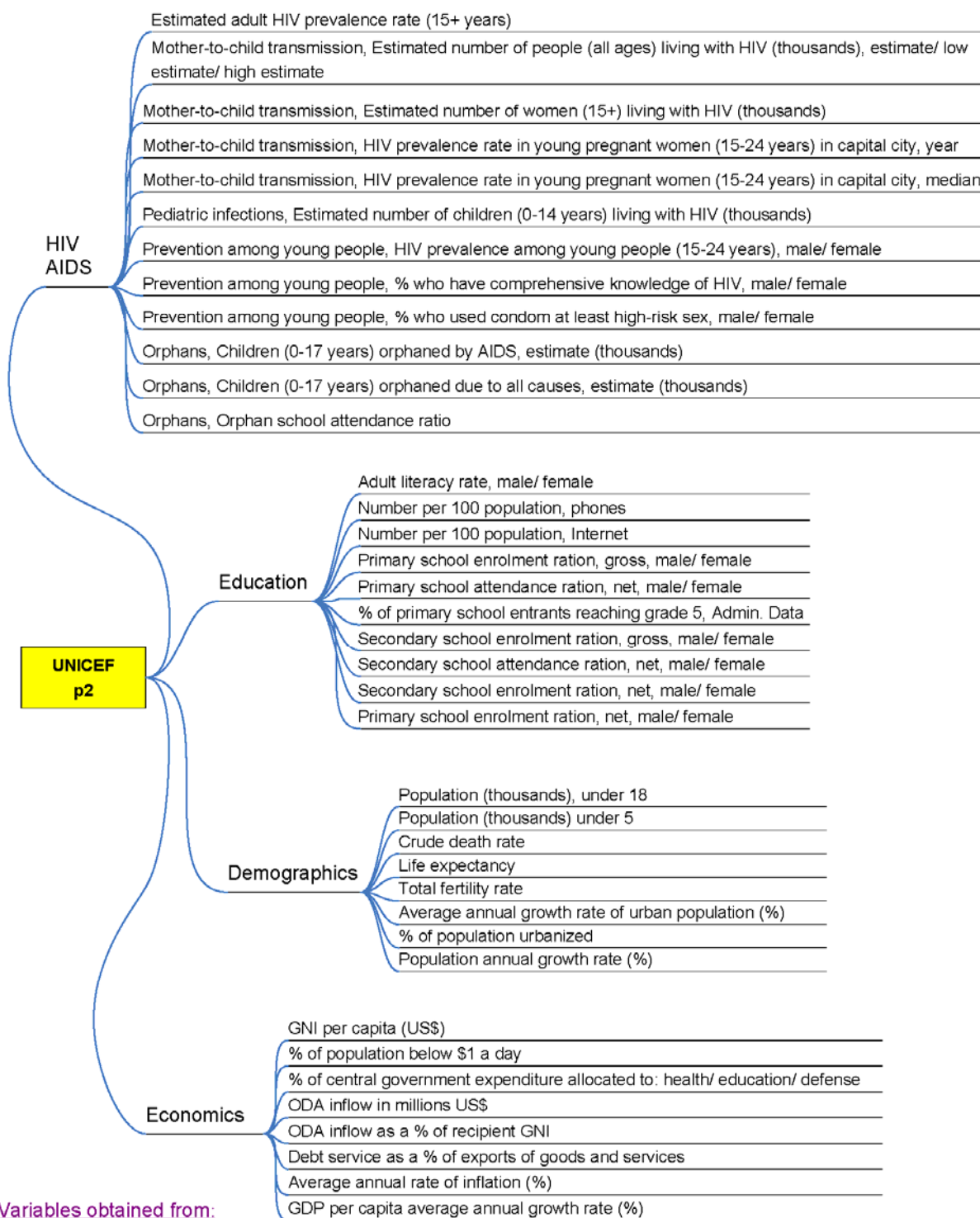


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Monitoring and statistics http://www.unicef.org/statistics/index_countrystats.html

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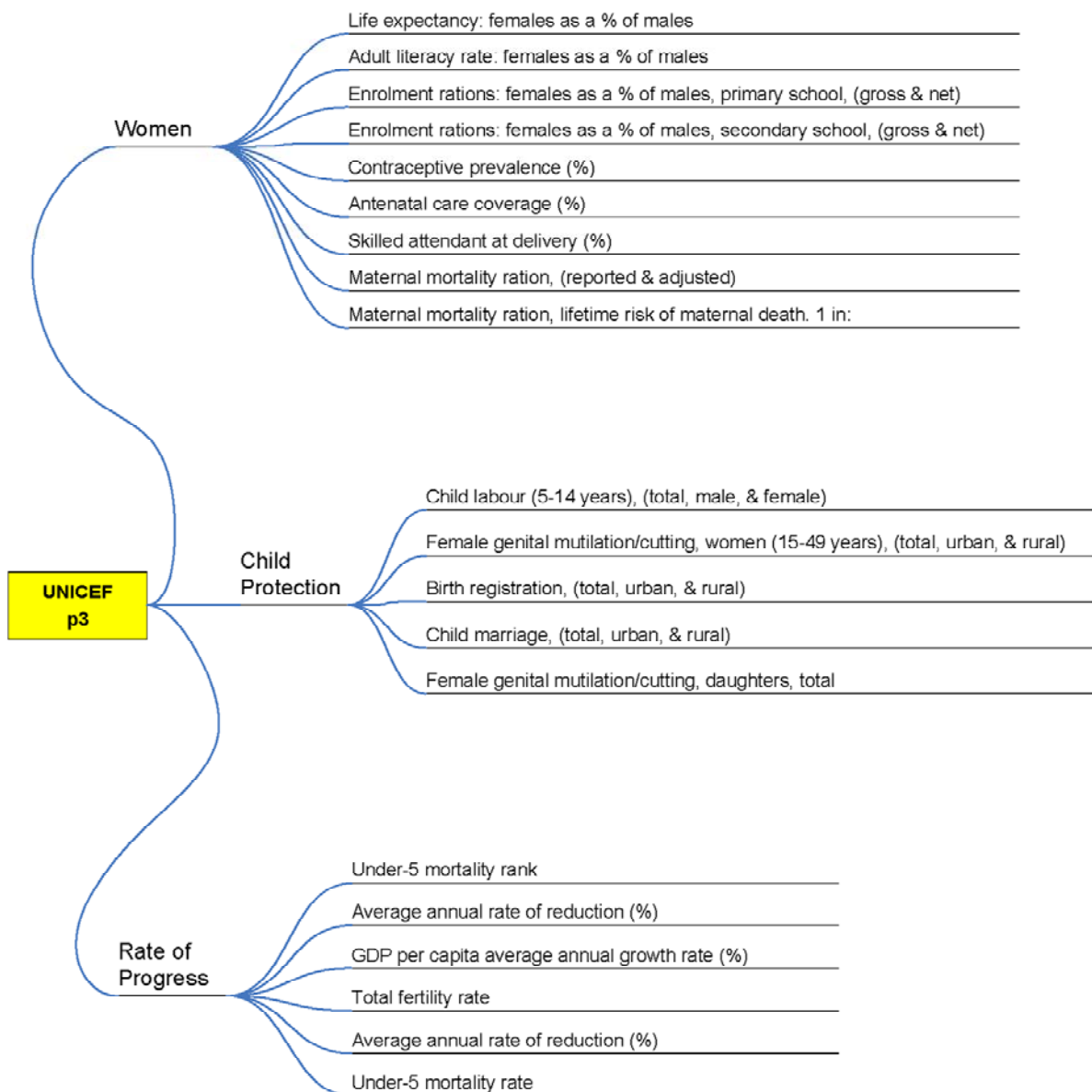


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UNICEF

Monitoring and statistics http://www.unicef.org/statistics/index_countrystats.html

http://www.unicef.org/infobycountry/stats_popup1.html

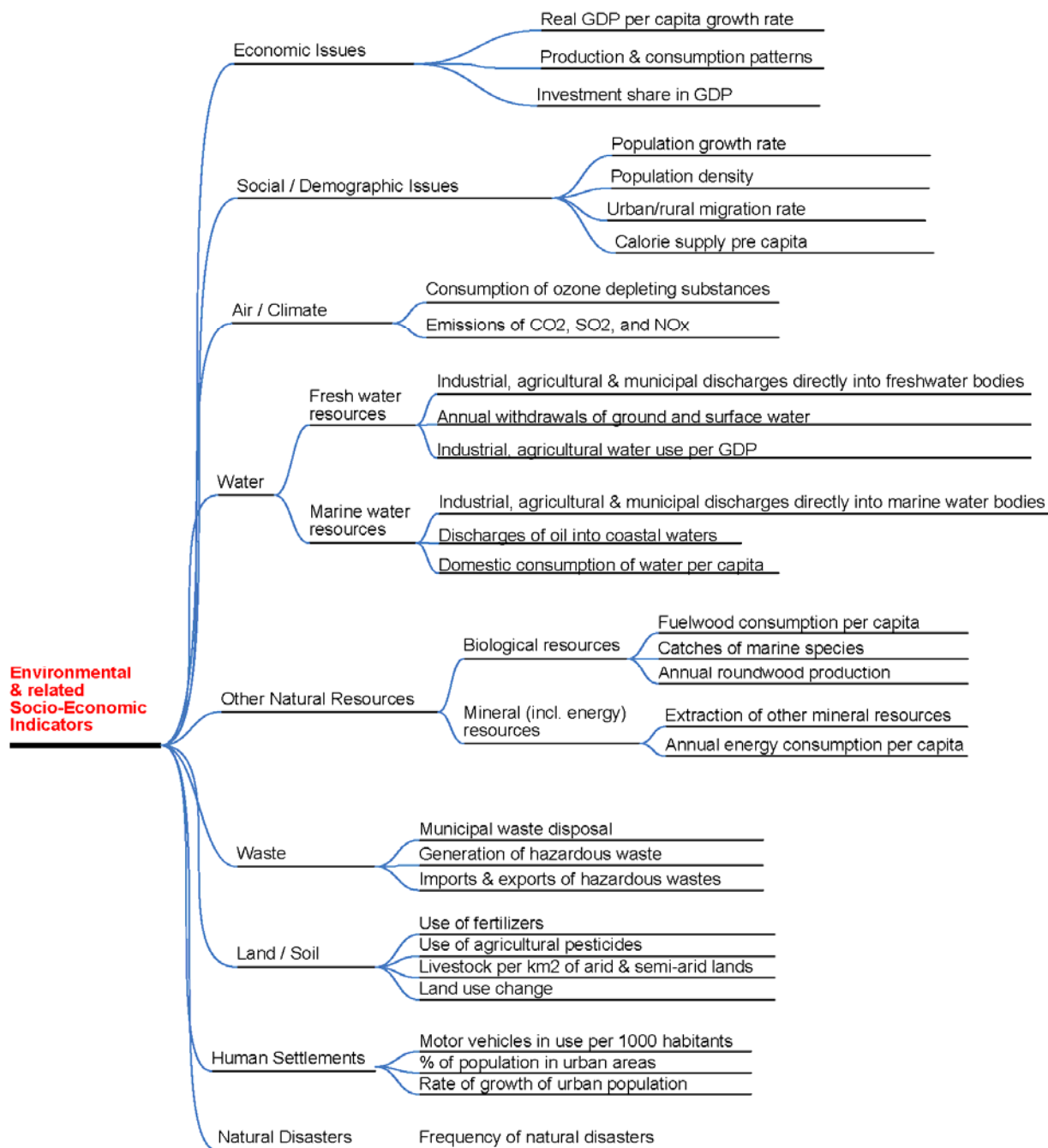


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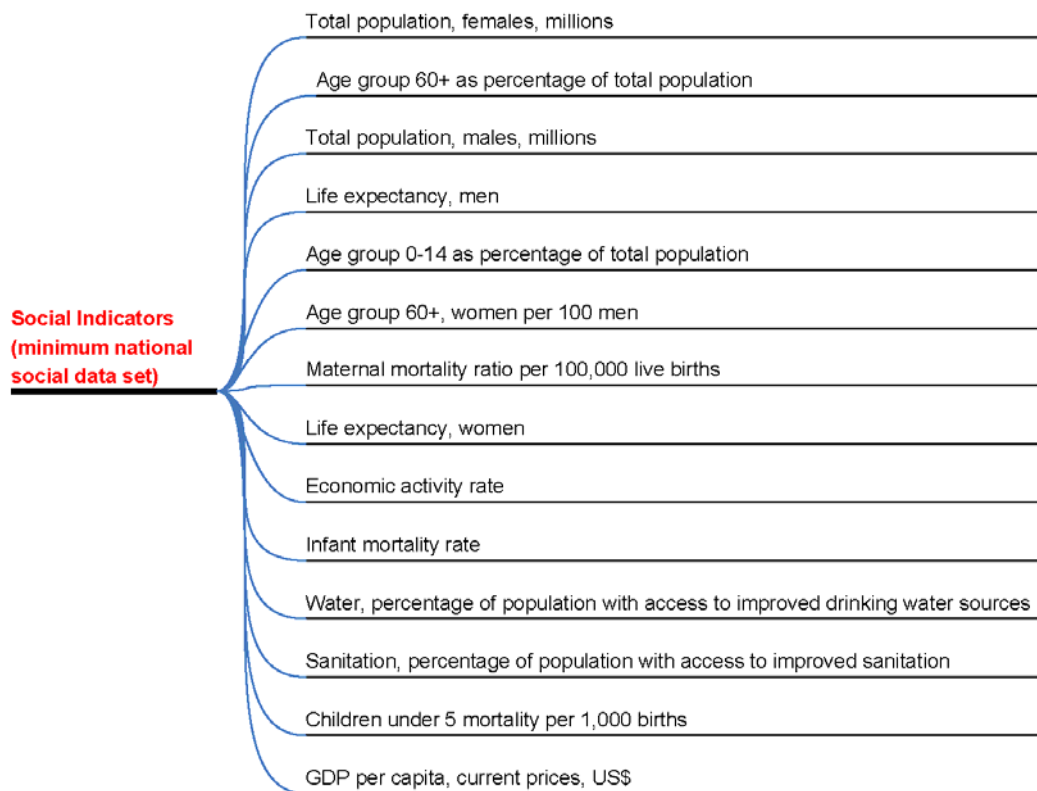
UNICEF

Monitoring and statistics http://www.unicef.org/statistics/index_countrystats.html

http://www.unicef.org/infobycountry/stats_popup1.html



Variables obtained from:
 United Nations Statistical Division
 Environmental and related socio-economic indicators
<http://unstats.un.org/unsd/environment/indicators.htm>

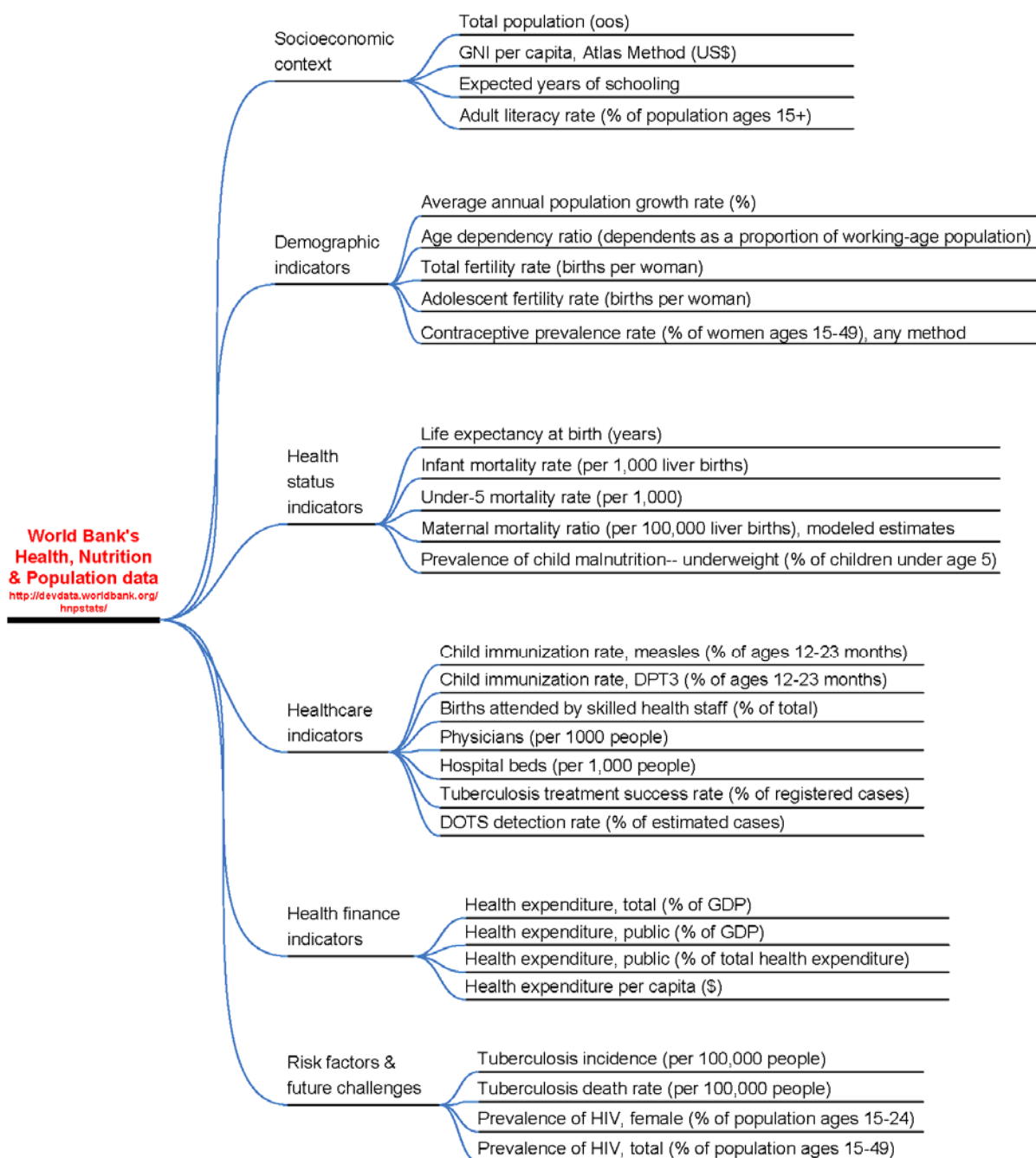


Variables obtained from:

United Nations Statistical Division

Country / Area Profile: Social Indicators (Minimum National Social Data set)

http://unstats.un.org/unsd/cdb/cdb_country_prof_select.asp

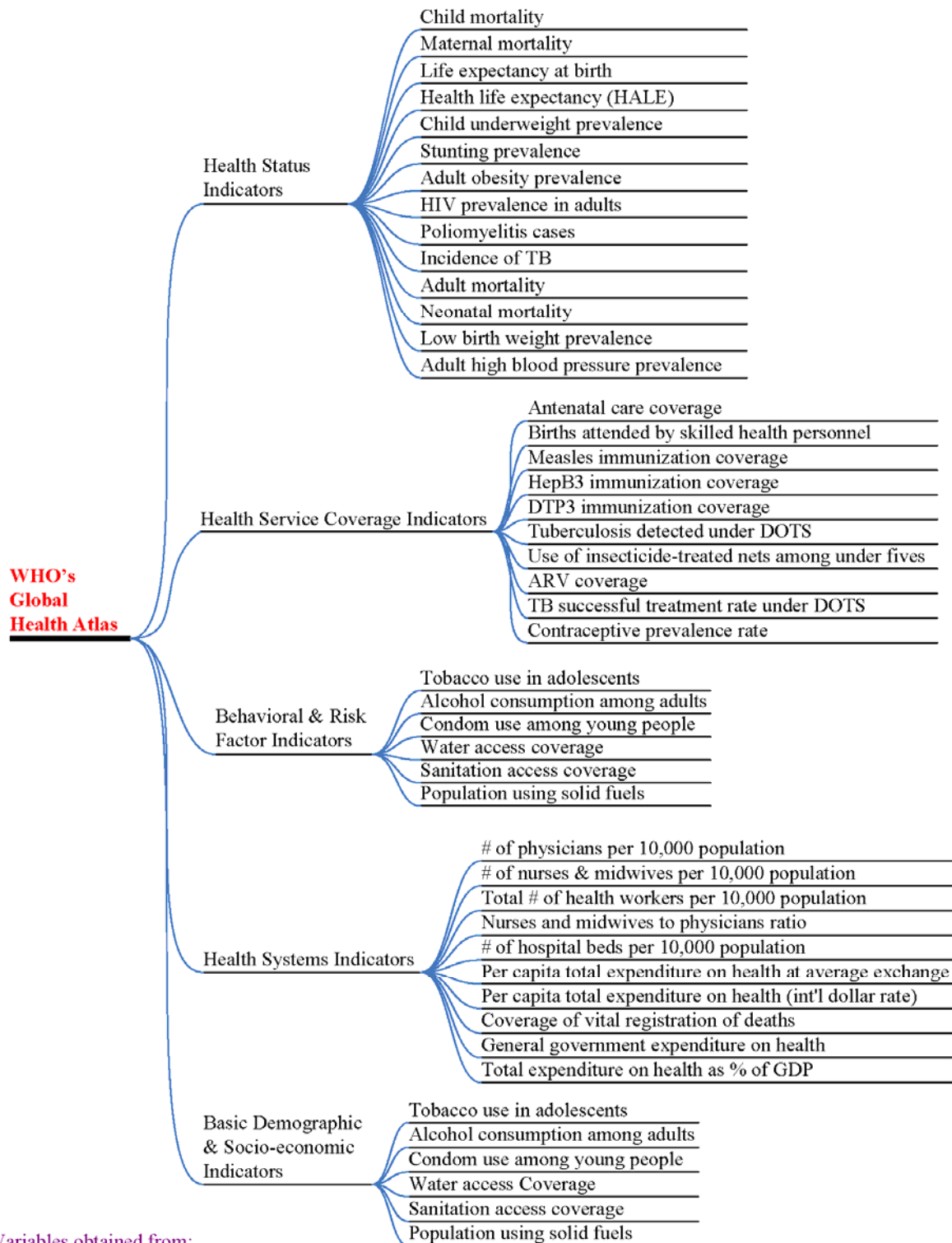


Variables obtained from:

The World Bank Group

HNP Summary Profile

<http://devdata.worldbank.org/hnpstats/cd1.asp>



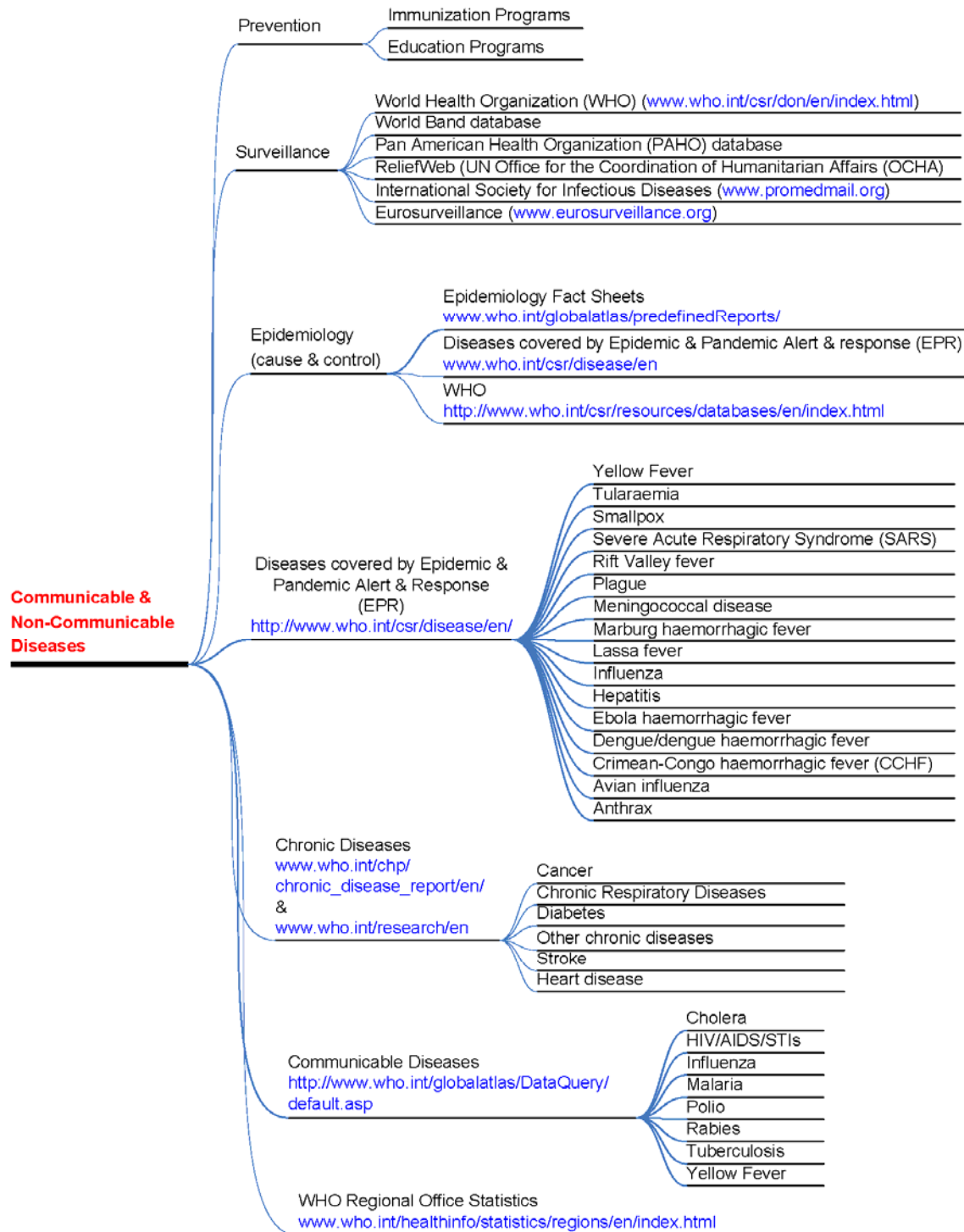
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World Health Organization
(<http://www.who.int/globalatlas/DataQuery/default.asp>)

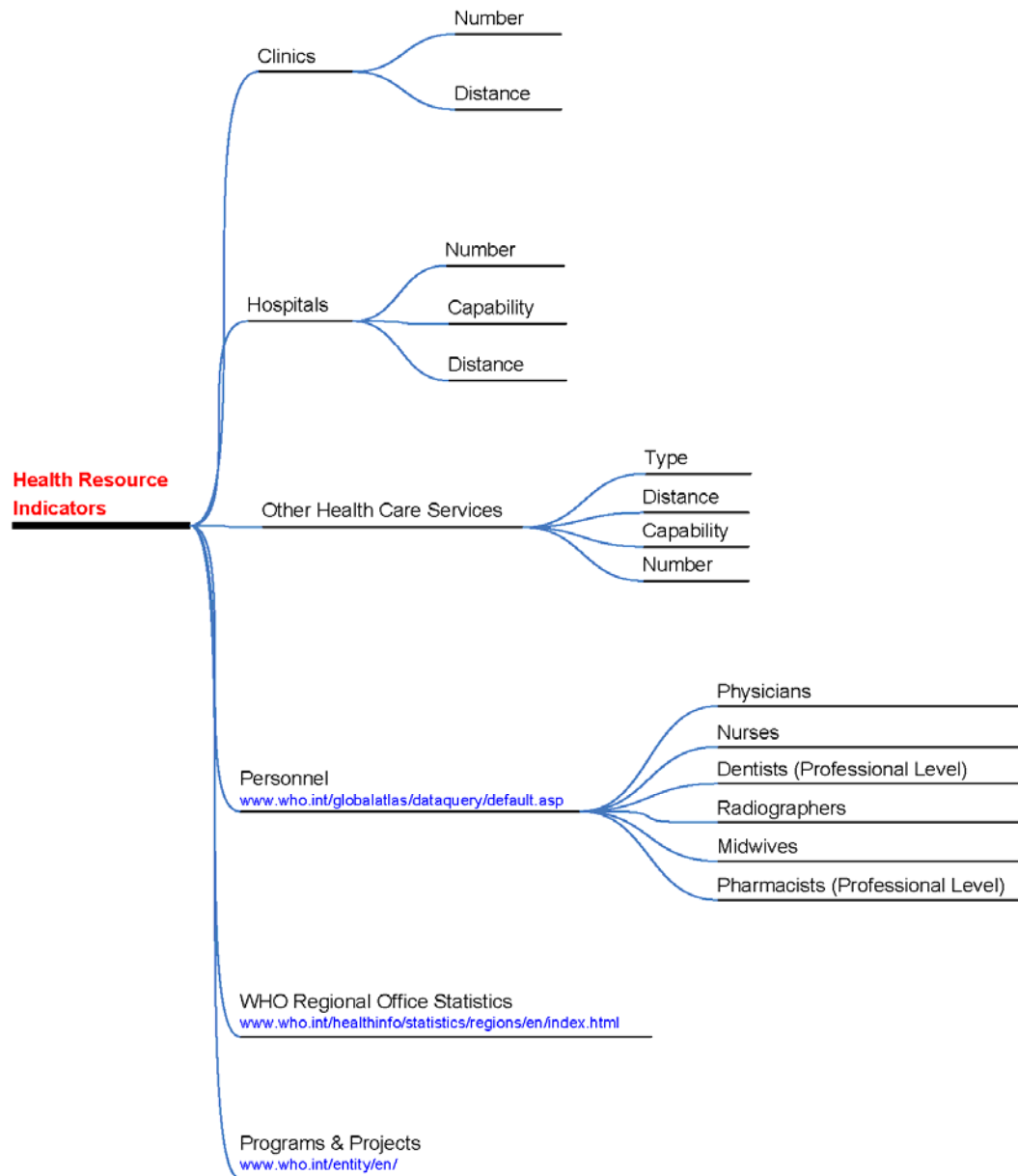
World Bank
World Development Indicators
http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&user_id=1&queryId=135

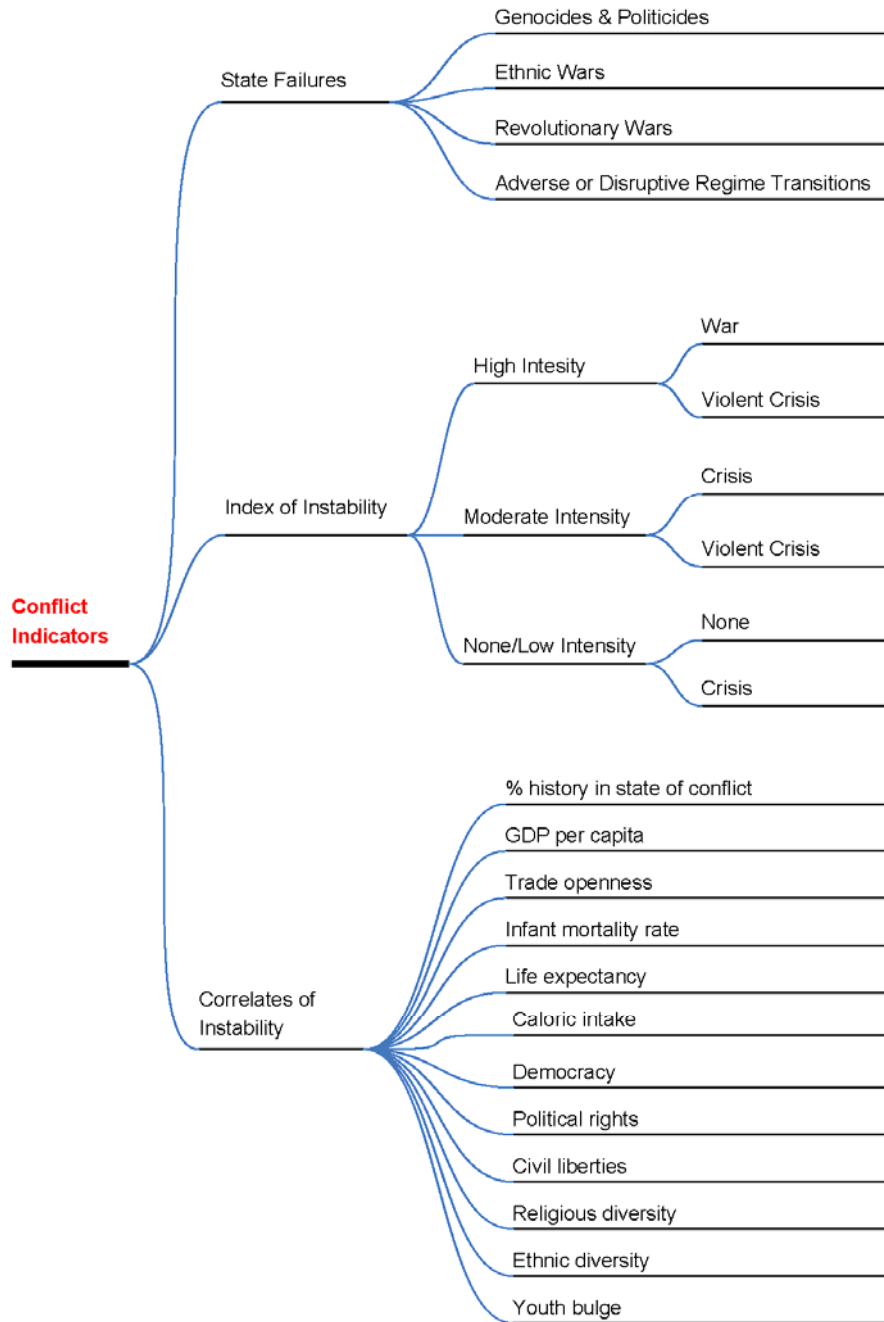
Agriculture, value added (% of GDP)
Agricultural land (% of land area)
Cash surplus/deficit (% of GDP)
Births attended by skilled health staff (% of total)
Electric power consumption (kWh per capita)
CO2 emissions (metric tons per capita)
Energy use (kg of oil equivalent per capita)
Energy imports, net (% of energy use)
Fertility rate, total (births per woman)
Exports of goods and services (% of GDP)
Foreign direct investment, net inflows (BoP, current US\$)
Fixed line and mobile phone subscribers (per 1,000 people)
GDP (current US\$)
Forest area (sq. km)
GNI per capit, Atlas method (current US\$)
GDP growth (annual %)
Gross capital formation (% of GDP)
GNI Atlas method (current US\$)
Immunizations, measles (% of children ages 12-23 months)
High-technology exports (% of manufactured exports)
Improved sanitation facilities, urban (% of urban population with access)
Imports of goods and services (% of GDP)
Industry, value added (% of GDP)
Improved water source (% of population with access)
Internet users (per 1,000 people)
Inflation, GDP deflator (annual %)
Literacy rate, adult total (% of people ages 15 and above)
Life expectancy at birth, total (years)
Malnutrition prevalence, weight for age (% of children under 5)
Long-term debt (DOD, current US\$)
Merchandise trade (% of GDP)
Market capitalization of listed companies (% of GDP)
Mortality rate, infant (per 1,000 live births)
Military expenditure (% of GDP)
Net barter terms of trade (2000 = 100)
Mortality rate under-5 (per 1,000)
Population growth (annual %)
Official development assistance and official aid (current US\$)
Poverty headcount ratio at national poverty line (% of population)
Population, total
Prevalence of HIV, total (% of population age 15-49)
Present value of debt (current US\$)
Ratio of girls to boys in primary and secondary education (%)
Primary completion rate, total (% of relevant age group)
Roads, paved (% of total roads)
Revenue, excluding grants (% of GDP)
School enrollment, secondary (% gross)
School enrollment, primary (% gross)
Services, etc., value added (% of GDP)
School enrollment, tertiary (% gross)
Time required to start a business (days)
Surface area (sq. km)
Workers' remittances and compensation of employees, received (US\$)
Total debt service (% of exports of goods, services and income)

Variables obtained from:

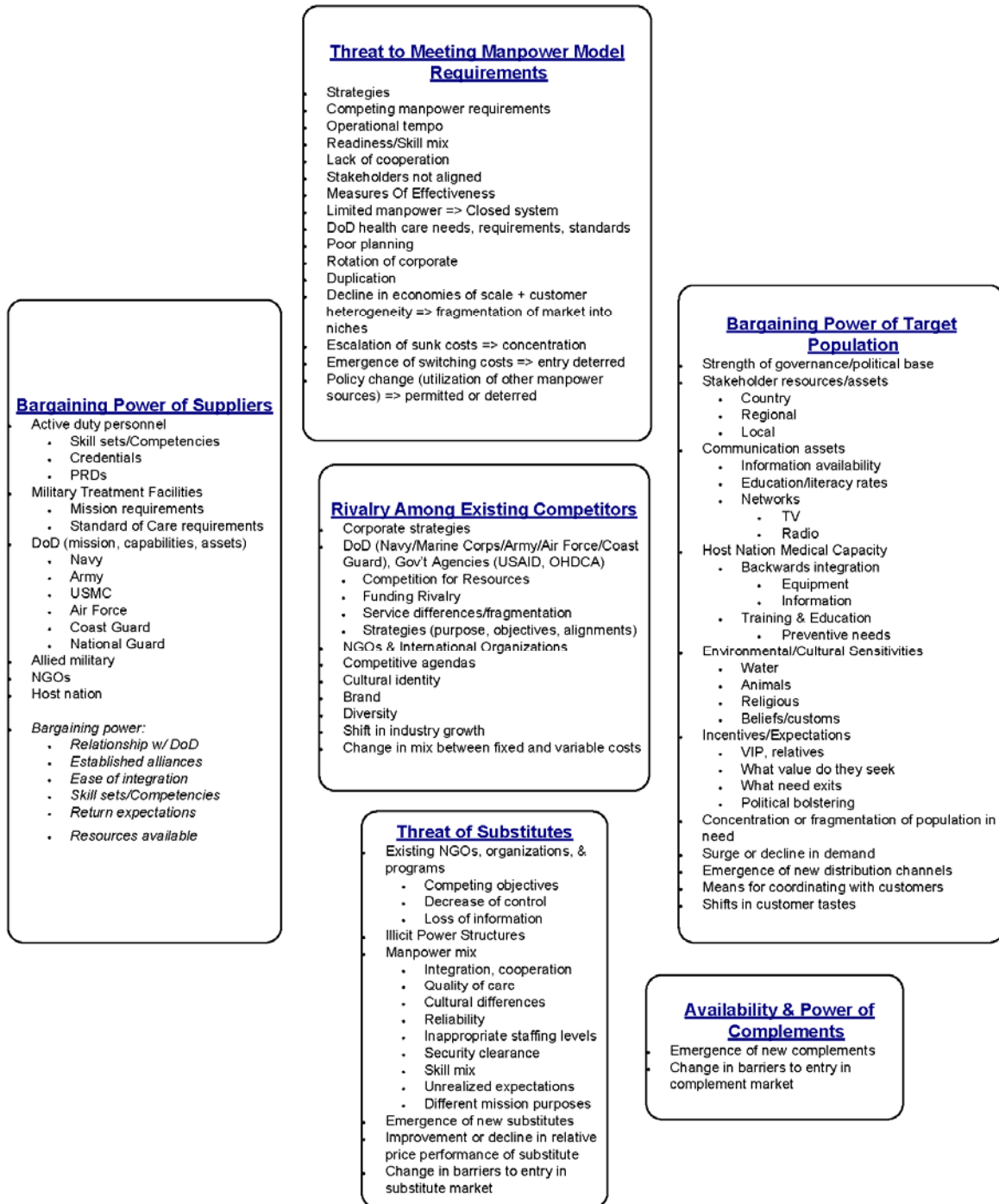
World Bank Quick Query: World Development Indicators
http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&user_id=1&queryId=135







Variables obtained from:
 "Anticipating the Good, the Bad, and the Ugly
 An Early Warning Approach to Conflict and Instability Analysis
 Sean P. O'Brien
 Department of the U.S. Army
 Center for Army Analysis



APPENDIX C: COOPERMAN_HOUDE MANPOWER ESTIMATION MODEL

Directions

	A	B	C	D	E
	General Guidance: -Red tabbed worksheet provide guidance and information on how to utilize this Manpower Model workbook for Humanitarian Medical Mission's manning -Yellow tabbed worksheet(s) require's data input -Green tabbed worksheet(s) provide summary reports -Maroon tabbed worksheet(s) provide other inputs utilized in the workings of this model -Blue tabbed worksheet(s) provide other useful information and resources				
1	Process				
2	Step Hyperlinked click on step # below	Source	Purpose	Action Step	Hyperlink to Data Source
3	<u>1</u>	World Health Organization (WHO)	Obtain country profile and strategy	Select country of interest, then print and review the following documents located under the heading "Overview" -Country profile on regional site -Country cooperation strategy Complete the MDG worksheet: Utilize the MDG statistical tables hyperlinked in next column. -Select country of interest and enter the data provided in the appropriate cells of the MDG's worksheet -Enter country's name on row 3 (this information will carry over to other worksheets automatically)	http://www.who.int/countries/en/#K
4	<u>2</u>	United Nations Children's Fund (UNICEF)	Obtain country's progress towards Millennium Development Goals (MDGs)		http://www.unicef.org/progressforchildren/2007n6/index_41854.htm
5	<u>3</u>	WHO Statistical Information System (WHOSIS)	Query database for country specific data	Complete the WHOSIS worksheet: Utilize this database query, hyperlinked in next column, to obtain indicator data: -Select country(s) of interest -Click on "Latest available Year" -Click "All Indicators" -Click "Submit" -Click "Download selected data" -if unable to download, print report Enter data into the appropriate cells of the WHOSIS's Worksheet	http://www.who.int/whosis/database/core/core_select.cfm
6	<u>4</u>	UNICEF	Obtain statistics on immunization coverage	Complete the Immunization's worksheet: For the country of interest, transcribe the immunization coverage data from the available table into the appropriate cells of the Immunization's worksheet.	http://www.childinfo.org/areas/immunization/countrydata.php

Directions

A	B	C	D	E
5	Global Health Atlas	Query database for country specific data	<p>Complete the Global Health Atlas worksheet:</p> <p>Utilize this database query, hyperlinked in next column, to obtain indicator data noted in the worksheet. The query will ask for the following:</p> <ul style="list-style-type: none"> -Select a category -Select a topic -Select items: -Choose geographical area: "add" countries of interest -Choose administrative level: "By Country" -Choose time period: click on "Latest available data" 	<p>http://www.who.int/globalatlas/dataQuery/default.asp</p>
6		Assign Responsible Specialty	<p>Complete Responsible Specialty worksheet</p> <ul style="list-style-type: none"> -Go row by row and place "1" in the column corresponding to the specialty assigned to care for the indicator of that row; enter a "0" otherwise. -Do not assign more than one specialty to the indicator -For support staff, the NAVMED recommended clinical support staff per provider is utilized. -If you do not want to go with the NAVMED recommendations, you can enter your estimated recommendation for support staff on the tab "Data Cruncher" (in the cells U:76 through U:AA) 	
7		Assess for strategic alignment	<p>Complete Strategic Alignment worksheet</p> <ul style="list-style-type: none"> -Utilize Countries Cooperation Strategy to extract the countries top priorities -Review all information gleaned (i.e. mission objectives, governing HA instructions/guidance, country profiles, and model's Summarized Overview and DemoSocioEcon Overview tabs) and answer the strategic alignment questions. 	

Directions

A	B	C	D	E
10	Assumptions			
	The model utilizes only basic medical service CPT codes and associated RVU weights. (Medical humanitarian aid that exceeds basic health care requirements and global humanitarian efforts may complicate political legitimacy of the country and fracture host nation capacity building efforts on all levels, from national, regional, state, and local communities.)			
11	The model is scaled based on patient population of 250, 500, 750, to 1,000. With the end user selection of the provider type, the model calculates the total providers required per day based on the aggregated unmet medical demand of the country as identified by statistical health indicator.			
12	When no other data was available for the prevalence of a stated disease, the death rate for that disease is utilized to represent the low number for occurrence			
13	Provider benchmarks are based on historical vice projected data.			
14	Inpatient workload captured in provider benchmarks would not significantly impact the workload calculation because the calculation utilized the 168 hour standard work month			
15				
	Equations Utilized			
16				
17	To convert annual provider RVU benchmarks to daily benchmarks: $\left(\frac{\text{Current Benchmark}}{(168 * 12)} \right) * 7.5$			
18				
19	"per 100,000 population" values: $\left(\frac{\text{Reported value}}{100,000} \right) * 1000$			
20				
21	"thousands" values: $\left(\left(\frac{\text{Reported value} * 1000 * 100}{(\text{Population (in thousands) total}) * 1000} \right) * 1000 \right) / 100$			
22				
23	"total" values: $\left(\left(\frac{\text{Reported value} * 100}{(\text{Population (in thousands) total}) * 1000} \right) * 1000 \right) / 100$			
24				
25				
26	"%" values: $\left(\frac{\text{Reported value}}{100} \right) * 1000$			
27				
28				
29	Remaining unmet need: $\left(1 - \left(\frac{\text{Reported value}}{100} \right) \right) * 1000$			
30				
31				

MDGs

	A	B	C	D	E	F
1		Millenium Development Goals				
2		http://www.who.int/mdg/goals/en/index.html				
3	Country:	Kenya				
4	Source:	UNICEF: Progress for Children: A World Fit for Children Statistical Review				
5	Hyperlink:	http://www.unicef.org/progressforchildren/2007n6/index_41854.htm				
6		Question	Answer			
7	Millenium Development	What is the progress towards meeting the following MDG targets?	No Progress	Insufficient Progress	On Track	Very High
8	MDG 1	Eradicate extreme poverty and hunger?		X		
9	MDG 2	Achieve Universal Primary Education?			X	
10	MDG 3	Eliminate Gender Disparity and Primary Education?			X	
11	MDG 4	Reduce child mortality?	X			
12	MDG 5	Improve maternal health?				X
13	MDG 6	Combat HIV/AIDS, malaria and other diseases?				
14	MDG 7	Ensure environmental sustainability (basic sanitation)?				
15		Access to improve drinking water source?			X	
16		Access to improve sanitation?	X			
17		Millenium Development Goals				
18	More Thorough Definitions:	http://www.unicef.org/progressforchildren/2007n6/index_41856.htm				
19	MDG 1	Eradicate extreme poverty and hunger				
20		Reduce by half the proportion of people living on less than a dollar a day				
21		Reduce by half the proportion of people who suffer from hunger				
22	MDG 2	Achieve universal primary education				
23		Ensure that all boys and girls complete a full course of primary schooling				
24	MDG 3	Promote gender equality and empower women				
25		Eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015				
26	MDG 4	Reduce child mortality				
27		Reduce by two thirds the mortality rate among children under five				
28	MDG 5	Improve maternal health				
29		Reduce by three quarters the maternal mortality ratio				
30	MDG 6	Combat HIV/AIDS, malaria and other diseases				
31		Halt and begin to reverse the spread of HIV/AIDS				
32		Halt and begin to reverse the incidence of malaria and other major diseases				
33	MDG 7	Ensure environmental sustainability				
34		Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources				
35		Reduce by half the proportion of people without sustainable access to safe drinking water				
36		Achieve significant improvement in lives of at least 100 million slum dwellers, by 2020				
37	MDG 8	Develop a Global Partnership for Development				
38		Develop further an open trading and financial system that is rule-based, predictable and non-discriminatory, includes a commitment to good governance, development and poverty reduction— nationally and internationally				
39		Address the least developed countries' special needs. This includes tariff- and quota-free access for their exports; enhanced debt relief for heavily indebted poor countries; cancellation of official bilateral debt; and more generous official development				
40		Address the special needs of landlocked and small island developing States				
41		Deal comprehensively with developing countries' debt problems through national and international measures to make debt sustainable in the long term				
42		In cooperation with the developing countries, develop decent and productive work for youth				
43		In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries				
44						

WHOSIS			
	A	C	D
1		Kenya	
2		Core Health Indicators http://www.who.int/whosis/database/core/core_select.cfm "Data Query"	Query Results (data)
3		Life expectancy at birth (years) males	51
4		Life expectancy at birth (years) females	51
5		Healthy life expectancy (HALE) at birth (years) males	44
6		Healthy life expectancy (HALE) at birth (years) females	45
7		Probability of dying (per 1 000 population) between 15 and 60 years (adult mortality rate) males	464
8		Probability of dying (per 1 000 population) between 15 and 60 years (adult mortality rate) females	483
9		Probability of dying (per 1 000 live births) under five years of age (under-5 mortality rate)	120
10		Infant mortality rate (per 1 000 live births)	78
11		Neonatal mortality rate (per 1 000 live births)	34
12		Maternal mortality ratio (per 100 000 live births)	1000
13		Deaths due to HIV/AIDS (per 100 000 population per year)	409
14		Deaths due to tuberculosis among HIV-negative people (per 100 000 population)	95.3
15		Deaths due to tuberculosis among HIV-positive people (per 100 000 population)	44
16		Age-standardized mortality rate for non-communicable diseases (per 100 000 population)	782
17		Age-standardized mortality rate for cardiovascular diseases (per 100 000 population)	401
18		Age-standardized mortality rate for cancer (per 100 000 population)	139
19		Age-standardized mortality rate for injuries (per 100 000 population)	95
20		Years of life lost to communicable diseases (%)	81
21		Years of life lost to non-communicable diseases (%)	11
22		Years of life lost to injuries (%)	8
23		Deaths among children under five years of age due to neonatal causes (%)	24.2
24		Deaths among children under five years of age due to HIV/AIDS (%)	14.6
25		Deaths among children under five years of age due to diarrhoeal diseases (%)	16.5
26		Deaths among children under five years of age due to measles (%)	3.2
27		Deaths among children under five years of age due to malaria (%)	13.6
28		Deaths among children under five years of age due to pneumonia (%)	19.9
29		Deaths among children under five years of age due to injuries (%)	2.7
30		Deaths among children under five years of age due to other causes (%)	5.3
31		HIV prevalence among adults aged 15+ years (per 100 000 population)	61.25
32		Prevalence of tuberculosis (per 100 000 population)	935.9
33		Incidence of tuberculosis (per 100 000 population per year)	641
34		Number of confirmed poliomyelitis cases	2
35		One-year-olds immunized with one dose of measles (%)	69
36		One-year-olds immunized with three doses of diphtheria tetanus toxoid and pertussis (DTP3) (%)	76
37		One-year-olds immunized with three doses of Hepatitis B (HepB3) (%)	76
38		Antenatal care coverage - at least one visit (%)	88
39		Antenatal care coverage - at least four visits (%)	52
40		Births attended by skilled health personnel (%)	42
41		Contraceptive prevalence rate (%)	39.3
42		Children under five years of age sleeping under insecticide-treated nets (%)	5
43		People with advanced HIV infection receiving antiretroviral (ARV) combination therapy (%)	44
44		HIV-infected pregnant women who received antiretroviral (ARV) combination therapy for PMTCT (%)	20
45		Tuberculosis: DOTS case detection rate (%)	42.8
46		Tuberculosis: DOTS treatment success (%)	80
47		Children under five years with acute respiratory infection and fever (ARI) taken to facility (%)	45.5
48		Children under five years of age with diarrhoea who received oral rehydration therapy (ORT) (%)	50.6
49		Children under five years of age with fever who received treatment with any antimalarial (%)	26.5
50		Children 6-59 months of age who received vitamin A supplementation (%)	33.3
51		Births by Caesarean section (%)	4
52		Children under five years of age stunted for age (%)	35.8
53		Children under five years of age underweight for age (%)	16.5
54		Children under five years of age overweight for age (%)	5.8
55		Newborns with low birth weight (%)	11
56		Prevalence of adults (15 years and older) who are obese (%) males	
57		Prevalence of adults (15 years and older) who are obese (%) females	6.3
58		Population with sustainable access to improved drinking water sources (%) urban	83
59		Population with sustainable access to improved drinking water sources (%) rural	46
60		Population with sustainable access to improved sanitation (%) urban	46
61		Population with sustainable access to improved sanitation (%) rural	41
62		Population using solid fuels (%) urban	17
63		Population using solid fuels (%) rural	94
64		Prevalence of current tobacco use in adolescents (13-15 years of age) (%)	12.7
65		Prevalence of current tobacco smoking among adults (15 years and older) (%) males	27.2
66		Prevalence of current tobacco smoking among adults (15 years and older) (%) females	1.9
67		Per capita recorded alcohol consumption (litres of pure alcohol) among adults (≥ 15 years)	1.5
68		Prevalence of condom use by young people (15-24 years) at higher risk sex (%) males	47
69		Prevalence of condom use by young people (15-24 years) at higher risk sex (%) females	25

WHOSIS

A	C		D
	Core Health Indicators http://www.who.int/whosis/database/core/core_select.cfm "Data Query"		Query Results (data)
2			
70	Health Systems	Physicians (number) ?	4,506
71		Physicians (density per 1,000 population) ?	0.14
72		Nurses (number) ?	37,113
73		Nurses (density per 1,000 population) ?	1.18
74		Midwives (number)	
75		Midwives (density per 1,000 population)	
76		Dentists (number) ?	1,340
77		Dentists (density per 1 000 population) ?	0.04
78		Pharmacists (number) ?	3,094
79		Pharmacists (density per 1,000 population) ?	0.1
80		Public and environmental health workers (number) ?	6,496
81		Public and environmental health workers (density per 1,000 population) ?	0.2
82		Community health workers (number)	
83		Community health workers (density per 1,000 population)	
84		Laboratory health workers (number) ?	7,000
85		Laboratory health workers (density per 1,000 population) ?	0.22
86		Other health workers (number) ?	5,610
87		Other health workers (density per 1,000 population) ?	0.17
88		Health management and support workers (number) ?	1,797
89		Health management and support workers (density per 1,000 population) ?	0.06
90		Total expenditure on health as percentage of gross domestic product ?	4.1
91		General government expenditure on health as percentage of total expenditure on health ?	42.7
92		Private expenditure on health as percentage of total expenditure on health ?	57.3
93		General government expenditure on health as percentage of total government expenditure ?	8.2
94		External resources for health as percentage of total expenditure on health ?	18.3
95		Social security expenditure on health as percentage of general government expenditure on health ?	8.4
96		Out-of-pocket expenditure as percentage of private expenditure on health ?	81.9
97		Private prepaid plans as percentage of private expenditure on health ?	6.1
98		Per capita total expenditure on health at average exchange rate (US\$) ?	20.1
99		Per capita total expenditure on health at international dollar rate ?	85.6
100		Per capita government expenditure on health at average exchange rate (US\$) ?	8.6
101		Per capita government expenditure on health at international dollar rate ?	36.5
102		Coverage of vital registration of deaths (%)	<10
103	Hospital beds (per 10,000 population)	19	
104	Inequities in Health	Probability of dying aged < 5 years per 1 000 live births (under-5 mortality rate) rural ?	116.9
105		Probability of dying aged < 5 years per 1 000 live births (under-5 mortality rate) urban ?	93.5
106		Probability of dying aged < 5 years per 1 000 live births (under-5 mortality rate) ratio rural-urban ?	1.3
107		Probability of dying aged < 5 years per 1 000 live births (under-5 mortality rate) lowest wealth quintile ?	149
108		Probability of dying aged < 5 years per 1 000 live births (under-5 mortality rate) highest wealth quintile ?	91
109		Probability of dying aged < 5 years per 1 000 live births (under-5 mortality rate) ratio lowest-highest wealth quintile ?	1.6
110		Probability of dying aged < 5 years per 1 000 live births (under-5 mortality rate) lowest educational level of mother ?	126.5
111		Probability of dying aged < 5 years per 1 000 live births (under-5 mortality rate) highest educational level of mother ?	62.9
112		Probability of dying aged < 5 years per 1 000 live births (under-5 mortality rate) ratio lowest-highest educational level of mother ?	2
113		Children aged < 5 years stunted for age (%) rural ?	32
114		Children aged < 5 years stunted for age (%) urban ?	23.8
115		Children aged < 5 years stunted for age ratio rural-urban ?	1.3
116		Children aged < 5 years stunted for age (%) lowest wealth quintile ?	38.1
117		Children aged < 5 years stunted for age (%) highest wealth quintile ?	19.2
118		Children aged < 5 years stunted for age ratio lowest-highest wealth quintile ?	2
119		Children aged < 5 years stunted for age (%) lowest educational level of mother ?	36.4
120		Children aged < 5 years stunted for age (%) highest educational level of mother ?	19
121		Children aged < 5 years stunted for age ratio lowest-highest educational level of mother ?	1.9
122		Births attended by skilled health personnel (%) rural ?	34.5
123		Births attended by skilled health personnel (%) urban ?	72
124		Births attended by skilled health personnel ratio urban-rural ?	2.1
125		Births attended by skilled health personnel (%) lowest wealth quintile ?	17
126		Births attended by skilled health personnel (%) highest wealth quintile ?	75.4
127		Births attended by skilled health personnel ratio highest-lowest wealth quintile ?	4.4
128		Births attended by skilled health personnel (%) lowest educational level of mother ?	15.8
129		Births attended by skilled health personnel (%) highest educational level of mother ?	72
130		Births attended by skilled health personnel ratio highest-lowest educational level of mother ?	4.6
131		Measles immunization coverage among one-year-olds (%) rural ?	69.7
132		Measles immunization coverage among one-year-olds (%) urban ?	85.9
133		Measles immunization coverage among one-year-olds ratio urban-rural ?	1.2
134		Measles immunization coverage among one-year-olds (%) lowest wealth quintile ?	54.8
135		Measles immunization coverage among one-year-olds (%) highest wealth quintile ?	88
136		Measles immunization coverage among one-year-olds ratio highest-lowest wealth quintile ?	1.6
137	Measles immunization coverage among one-year-olds (%) lowest educational level of mother ?	51.1	
138	Measles immunization coverage among one-year-olds (%) highest educational level of mother ?	84.9	
139	Measles immunization coverage among one-year-olds ratio highest-lowest educational level of mother ?	1.7	

WHOSIS

A		C	D
		Core Health Indicators	Query Results
		http://www.who.int/whosis/database/core/core_select.cfm	(data)
2		"Data Query"	
140	Demographic and Socioeconomic Statistics	Population (in thousands) total	34256
141		Population annual growth rate (%)	2.3
142		Population in urban areas (%)	21
143		Total fertility rate (per woman)	5
144		Adolescent fertility rate (%)	11.6
145		Adult literacy rate (%)	73.6
146		Net primary school enrolment ratio males (%)	76
147		Net primary school enrolment ratio females (%)	77
148		Gross national income per capita (PPP international \$)	1170
149		Population living below the poverty line (% living on <US\$1 per day)	
150	Information and Communication Technology	Information and communication technology diffusion	0.22
151		Information and communication technology connectivity	0.01
152		Information and communication technology access	0.42
153		Information and communication technology policy	0.63
154		Main telephone lines per 100 inhabitants	1
155		Cost of a 3-minute fixed-line phone call (US\$)	0.09
156		Mobile phone subscribers per 100 inhabitants	4
157		Cost of a 3-minute mobile phone call (US\$)	0.57
158		Personal computers per 1000 inhabitants	6
159		Internet users per 1,000 inhabitants	13
160		Internet hosts per 100,000 inhabitants	9
161		Information and communication technology expenditure (% of GDP)	3.38
162			

UNICEF

	A	C	D
1	Country:	Kenya	
2		UNICEF Country Statistics http://www.unicef.org/statistics/index_24183.html "Data Query"	Query Results (data)
3	Basic Indicators	Under-5 mortality rank	37
4		Under-5 mortality rate, 2005	120
5		Infant mortality rate (under 1), 2005	79
6		Neonatal mortality rate, 2000	29
7		Annual no. of births (thousands), 2005	1361
8		Annual no. of under-5 deaths (thousands), 2005	163
9		Life expectancy at birth (years), 2005	48
10	Nutrition	% of infants with low birthweight, 1998-2005*	10
11		% of children (1996-2005*) who are: exclusively breastfed (<6 months)	13
12		% of children (1996-2005*) who are: breastfed with complementary food (6-9 months)	84
13		% of children (1996-2005*) who are: still breastfeeding (20-23 months)	57
14		% of under-fives (1996-2005*) suffering from: underweight, moderate & severe	20
15		% of under-fives (1996-2005*) suffering from: underweight, severe	4
16		% of under-fives (1996-2005*) suffering from: wasting, moderate & severe	6
17		% of under-fives (1996-2005*) suffering from: stunting, moderate & severe	30
18		Vitamin A supplementation coverage rate (6-59 months), 2004	63
19		% of households consuming iodized salt, 1998-2005*	91
20	Health	% of routine EPI vaccines financed by government, 2005, total	80
21		Immunization 2005?, 1-year-old children immunized against: TB, corresponding vaccines: BCG	85
22		Immunization 2005?, 1-year-old children immunized against: DPT, corresponding vaccines: DPT1?	85
23		Immunization 2005?, 1-year-old children immunized against: DPT, corresponding vaccines: DPT3?	76
24		Immunization 2005?, 1-year-old children immunized against: Polio, corresponding vaccines: polio3	70
25		Immunization 2005?, 1-year-old children immunized against: Measles, corresponding vaccines: measles	69
26		Immunization 2005?, 1-year-old children immunized against: HepB, corresponding vaccines: HepB3	76
27		Immunization 2005?, 1-year-old children immunized against: Hib, corresponding vaccines: Hib3	76
28		Immunization 2005?, % newborns protected against tetanus	72
29		% under-fives with suspected pneumonia±, 1999-2005*	18
30		% under-fives with suspected pneumonia taken to health-care provider±	49
31		% under-fives with diarrhoea receiving oral rehydration and continued feeding, 1998-2005*	33
32		Malaria 1999-2005*, % under-fives sleeping under a mosquito net	15
33		Malaria 1999-2005*, % under-fives sleeping under a treated mosquito net	5
34		Malaria 1999-2005*, % under-fives with fever receiving antimalarial drugs	27
35	HIV / AIDS	Mother-to-child transmission, Estimated number of people (all ages) living with HIV, 2005 (thousands), estimate	1300
36		Paediatric infections, Estimated number of children (0-14 years) living with HIV, 2005 (thousands)	150
37		Prevention among young people, HIV prevalence among young people (15-24 years), 2005, male	1
38		Prevention among young people, HIV prevalence among young people (15-24 years), 2005, female	5.2
39		Prevention among young people, % who have comprehensive knowledge of HIV, 1999-2005*, male	47
40		Prevention among young people, % who have comprehensive knowledge of HIV, 1999-2005*, female	34
41		Prevention among young people, % who used condom at last high-risk sex, 1999-2005*, male	47
42		Prevention among young people, % who used condom at last high-risk sex, 1999-2005*, female	25
43		Orphans, Children (0-17 years) orphaned by AIDS, 2005, estimate (thousands)	1100
44		Orphans, Children (0-17 years) orphaned due to all causes, 2005, estimate (thousands)	2300
45		Orphans, Orphan school attendance ratio, 1999-2005*	95
46	Ed	Adult literacy rate, 2000-2004*, male	78
47		Adult literacy rate, 2000-2004*, female	70
48	Demo	Population (thousands), 2005, under 18	17214
49		Population (thousands), 2005, under 5	5736
50	Econ	% of central government expenditure (1994-2004*) allocated to: health	7
51		% of central government expenditure (1994-2004*) allocated to: education	26

UNICEF

	A	C	D
1	Country:	Kenya	
2		UNICEF Country Statistics http://www.unicef.org/statistics/index_24183.html "Data Query"	Query Results (data)
52		% of central government expenditure (1994-2004*) allocated to: defence	6
53	Child Protection	Child labour (5-14 years) 1999-2005*, total	27
54		Child labour (5-14 years) 1999-2005*, male	28
55		Child labour (5-14 years) 1999-2005*, female	27
56		Child marriage 1987-2005*, total	25
57		Child marriage 1987-2005*, urban	19
58		Child marriage 1987-2005*, rural	27
59		Female genital mutilation/cutting 1997-2005*, womena (15-49 years) , total	32
60		Female genital mutilation/cutting 1997-2005*, womena (15-49 years) , urban	21
61		Female genital mutilation/cutting 1997-2005*, womena (15-49 years) , rural	36
62		Female genital mutilation/cutting 1997-2005*, daughtersb, total	21
63			

Global Health Atlas

	A	C	D
1	Country:	Kenya	
2		Global Health Atlas http://www.who.int/globalatlas/ "Data Query"	Query Results (data)
3	Communicable Diseases	Directions for this section -Select a category: " Communicable Diseases " -Select a topic and items noted in the section below -Choose geographical area: "add" countries of interest -Choose administrative level: "By Country" -Choose time period: click on "Latest available data"	
4		Cholera -> Number of cases -> Total	870
5		Influenza -> Influenza-like illness -> Level	Sporadic
6		Malaria -> Reported Malaria -> a. Reported malaria cases (annual) -> Total	124,197
7		Yellow Fever -> Demography -> Total population -> Total	3,346,700
8		Yellow Fever -> Demography -> % of urban population -> Total	33.10
9		Yellow Fever -> Yellow fever vaccine coverage -> Total	
10	Noncommunicable Diseases	Directions for this section -Select a category: " Noncommunicable Diseases " -Select a topic: " Blindness, Trachoma " -Select items: items noted in the section below -Choose geographical area: "add" countries of interest -Choose administrative level: "By Country" -Choose time period: click on "Latest available data"	
11		Blindness, Trachoma -> Active trachoma (TF/TI), all ages -> Total	2,045,762
12		Blindness, Trachoma -> Cicatricial trachoma (TT), all ages -> Total	54,627
13		Blindness, Trachoma -> Prevalence (%), ages<10, TF/TI -> Total	30
14	World health Statistics	Directions for this section -Select a category: " World health Statistics " -Select a topic: " Behavioural and Risk Factor Indicators " -Select items: items noted in the section below -Choose geographical area: "add" countries of interest -Choose administrative level: "By Country" -Choose time period: click on "Latest available data"	
15		Tobacco use in adolescents -> Male	21
16		Tobacco use in adolescents -> Female	14
17		Alcohol consumption among adults -> Total	2
18		Directions for this section -Select a category: " World health Statistics " -Select a topic: " Health Status Indicator " -Select items: items noted in the section below -Choose geographical area: "add" countries of interest -Choose administrative level: "By Country" -Choose time period: click on "Latest available data"	
19		Adult high blood pressure prevalence -> Female	108
20		Adult high blood pressure prevalence -> Male	118
21			

Immunizations

WHO/UNICEF Estimates of National Immunization Coverage 2006								
Country	BCG	DTP1	DTP3	HepB3	Hib3	MCV	Pol3	PAB
Kenya	92	90	80	80	80	77	77	74
To verify this is the most current report, go to http://www.childinfo.org/areas/immunization/countrydata.php								

Responsible Specialty

	A	C	D	E	F	G	H	I	J	K	L
1			Providers							Non-providers	
2		Kenya	For each row place a "1" in the column of the provider type that will be responsible for care (if applicable)							Place a "1" in column/row if applicable	
3		"Assignment of Responsibility"	Pediatrics / General, Adolescent	Family Practice	Int.Med / Infectious Disease	OB / GYN	Oral & Maxillofacial Surgery	Ophthalmology	Comprehensive Dentistry	Preventive Medicine	Public Health Education
4	Adult	Patient populations w/ S&Sx of									
5		HIV			1					N/A	N/A
6		Hypertension (Females)		1							
7		Hypertension (Males)		1							
8		Tuberculosis								N/A	N/A
9		Antenatal				1				N/A	N/A
10		Contraception				1				N/A	N/A
11		Female genita mutilation		1						N/A	N/A
12		Obesity (Males)		1						N/A	N/A
13		Obesity (Females)		1						N/A	N/A
14		Cholera			1					N/A	N/A
15		Yellow Fever		1						N/A	N/A
16	Infant / Child	Infants & Children w/ S&Sx of									
17		Low birthweight	1							N/A	N/A
18		Underweight	1							N/A	N/A
19		Stunted growth	1							N/A	N/A
20		Pneumonia	1							N/A	N/A
21		HIV			1					N/A	N/A
22		Acute Respiratory Infection and fever	1							N/A	N/A
23		Diarrhoea	1							N/A	N/A
24		Trachoma						1		N/A	N/A
25		HIV/AIDS								N/A	N/A
26		Measles	1							N/A	N/A
27		Malaria	1							N/A	N/A
28		Injuries	1							N/A	N/A
29		Other causes of death in children	1							N/A	N/A
30		Polio			1					N/A	N/A
31	Preventive Medicine & Education Opportunities	Education Topics									
32		Neonatal causes of death	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
33		HIV/AIDS in children	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
34		Diarrhoeal diseases	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
35		Measles	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
36		Malaria	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
37		Pneumonia	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
38		Injuries in children	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
39		Other causes of death in children	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
40		Vitamin A supplementation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
41		Use of iodized salt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
42		Malaria prevention: treated mosquito nets	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
43		HIV in adults	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
44		HIV prevention (males)	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
45		HIV prevention (females)	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
46		Contraception	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
47		Condom use (males)	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
48		Condom use (females)	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
49		Antenatal care	N/A	N/A	N/A	N/A	N/A	N/A	N/A		1
50		Immunizations									
51		BCG	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
52		DTP1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
53		DTP3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
54		HepB4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
55		Hib3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
56		MCV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
57		Pol3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
58		PAB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
59		Yellow Fever	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	

Strategic Alignment

	A	B	C	D
1		Kenya		
2		The country's top priorities per their "Country Cooperation Strategy"		
3		HIV/AIDS		
4		Tuberculosis		
5		Malaria		
6		Maternal health		
7		Child and adolescent health		
8		Strengthening of health systems		
9		Blood safety		
10		Humanitarian and emergency action		
11		Health promotion		
12		Noncommunicable diseases control including mental health		
13		Poverty and health		
14				
15				
16				
17		Strategic Alignment		
18			Yes = 1 No = 0	Comments
19	1	Have you identified primary local health officials and what role do they play in the mission?		
20	2	Do you know which medical technical skills and services align with country cooperative strategy?		
21	3	Can the medical service or transfer of skill carry forward in the future?		
22	4	Do medical services meet local medical requirements?		
23	5	Does the medical service delivery meet best practices, and design for local conditions?		
24	6	Can you focus resources to clearly define measurable and strategically-focused objectives?		
25	7	Have you identified potential partners (government, community, donors, NGOs, private sector, international organizations, and universities)?		
26	8	Are core medical services identified and scalable to maximize efficiency?		
27	9	Is the standard data collection method incorporated into the mission?		
28		Sum:	0	

Summarized Overview

	D	G	H	I	J	K	L	M	N	O	P	Q	R
1	Kenya												
2	Population (in thousands) total	34,256											
3	Population (thousands), 2005, under 18	17,214											
4	Population (thousands), 2005, under 5	5,736											
5													
		For every 1000 encounters there is the following potential need	Sum RVU weights	Total Work load Intensity	Pediatrics / General Adolescent	Family Practice	Int Med / Infectious Disease	OB / GYN	Oral & Maxillofacial Surgery	Ophthalmology	Comprehensive Dentistry	Preventive Medicine	Public Health Education
6	Health: Adults												
7	Incidence of tuberculosis (per year)	61.25	0.59	35.14	0	0	1	0	0	0	0	0	0
8	Adult high blood pressure (females)	108	0.46	49.68	0	1	0	0	0	0	0	0	0
9	Adult high blood pressure (males)	118	0.46	54.28	0	1	0	0	0	0	0	0	0
10	Incidence of tuberculosis (per year)	6.41	0.46	2.95	0	0	0	0	0	0	0	0	0
11	Antenatal care (have not had at least four visits)	480	0.46	220.80	0	0	0	1	0	0	0	0	0
12	Contraceptive (not using)	607	0.02	12.14	0	0	0	1	0	0	0	0	0
13	Female genital mutilation/cutting (age 15-49yrs)	#VALUE!	0.46	0.00	0	1	0	0	0	0	0	0	0
14	Male obesity		0.24	#VALUE!	0	1	0	0	0	0	0	0	0
15	Female obesity	63	1.24	78.12	0	1	0	0	0	0	0	0	0
16	Cholera cases	0.03	0.73	0.02	0	0	1	0	0	0	0	0	0
17	Yellow fever cases (urban)	331	0.73	241.63	0	1	0	0	0	0	0	0	0
18	Health: Infants & Children												
19	Infants with low birth weight	100	0.24	24.00	1	0	0	0	0	0	0	0	0
20	Children (age <5yrs) moderately & severely underweight	200	0.24	48.00	1	0	0	0	0	0	0	0	0
21	Children (age <5yrs) stunted for age	358	0.24	85.92	1	0	0	0	0	0	0	0	0
22	Children (age <5yrs) with suspected pneumonia	180	0.63	113.40	1	0	0	0	0	0	0	0	0
23	Children (0-14 yrs) living with HIV	4.38	0.73	3.20	0	0	1	0	0	0	0	0	0
24	Children (age <5) with acute respiratory infection & fever	455	0.46	209.30	1	0	0	0	0	0	0	0	0
25	Children (age <5) with diarrhoea receiving oral rehydration & continued feeding	330	0.67	221.10	1	0	0	0	0	0	0	0	0
26	Children (age <10) blind due to Trachoma	300	0.9	270.00	0	0	0	0	0	1	0	0	0
27	Children (age <5) dying due to HIV/AIDS	146	0.02	2.92	0	0	0	0	0	0	0	0	0
28	Children (age <5) dying due to measles	32	0.63	20.16	1	0	0	0	0	0	0	0	0
29	Children (age <5) dying due to malaria	136	0.63	85.68	1	0	0	0	0	0	0	0	0
30	Children (age <5) dying due to injuries	27	0.46	12.42	1	0	0	0	0	0	0	0	0
31	Children (age <5) dying due to other causes	53	1.46	77.38	1	0	0	0	0	0	0	0	0
32	Polio myelitis	5.84E-05	0.63	0.00	0	0	1	0	0	0	0	0	0
33	Potential Education & Prevention Opportunities and Information												
34	Neonatal causes of death	242	0.02	4.84	0	0	0	0	0	0	0	0	1
35	Child HIV/AIDS	146	0.02	2.92	0	0	0	0	0	0	0	0	1
36	Diarrhoeal diseases	165	0.02	3.30	0	0	0	0	0	0	0	0	1
37	Measles	32	0.02	0.64	0	0	0	0	0	0	0	0	1
38	Malaria	136	0.02	2.72	0	0	0	0	0	0	0	1	0
39	Pneumonia	199	0.02	3.98	0	0	0	0	0	0	0	0	1
40	Injuries	27	0.02	0.54	0	0	0	0	0	0	0	0	1
41	"Other" causes of childhood death	53	0.02	1.06	0	0	0	0	0	0	0	0	1
42	Vitamin A supplementation	370	0.02	7.40	0	0	0	0	0	0	0	1	0
43	Iodized salt intake	90	0.02	1.80	0	0	0	0	0	0	0	1	0
44	Use of treated mosquito nets	950	0.02	19.00	0	0	0	0	0	0	0	1	0
45	Adult HIV	61.25	0.02	1.23	0	0	0	0	0	0	0	0	1

Summarized Overview

	D	G	H	I	J	K	L	M	N	O	P	Q	R
		For every 1000 encounters there is the following potential need	Sum RVU weights	Total Work load Intensity	Pediatrics / General Adolescent	Family Practice	Int Med / Infectious Disease	OB / GYN	Oral & Maxillofacial Surgery	Ophthalmology	Comprehensive Dentistry	Preventive Medicine	Public Health Education
6	Health: Adults												
46	HIV (topics for men)	530	0.02	10.60	0	0	0	0	0	0	0	0	1
47	HIV (topics for women)	660	0.02	13.20	0	0	0	0	0	0	0	0	1
48	Contraceptive methods	607	0.02	12.14	0	0	0	0	0	0	0	0	1
49	Condoms (topics for men)	750	0.02	15.00	0	0	0	0	0	0	0	0	1
50	Condoms (topics for women)	750	0.02	15.00	0	0	0	0	0	0	0	0	1
51	Antenatal care	120	0.02	2.40	0	0	0	0	0	0	0	0	1
52	Immunizations: Potential Need												
53	BCG	80	0.17	13.60	0	0	0	0	0	0	0	1	0
54	DTP1	100	0.17	17.00	0	0	0	0	0	0	0	1	0
55	DTP3	200	0.17	34.00	0	0	0	0	0	0	0	1	0
56	HepB3	200	0.17	34.00	0	0	0	0	0	0	0	1	0
57	Hib3	200	0.17	34.00	0	0	0	0	0	0	0	1	0
58	MCV	230	0.17	39.10	0	0	0	0	0	0	0	1	0
59	Pol3	230	0.17	39.10	0	0	0	0	0	0	0	1	0
60	PAB	260	0.17	44.20	0	0	0	0	0	0	0	1	0
61	Yellow Fever	#VALUE!	0.17	#VALUE!	0	0	0	0	0	0	0	1	0
62													
63													
64													
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79													
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DemoSocioEcon Overview

	A	B	C	D	E	F
1	Country:	Kenya				
2		What is the progress towards meeting the following MDG targets?	No Progress	Insuff. Prog	On Track	Very High
3	MDG 1	Eradicate extreme poverty and hunger?	0	X	0	0
4	MDG 2	Achieve Universal Primary Education?	0	0	X	0
5	MDG 3	Eliminate Gender Disparity and Primary Education?	0	0	X	0
6	MDG 4	Reduce child mortality?	X	0	0	0
7	MDG 5	Improve maternal health?	0	0	0	X
8	MDG 6	Combat HIV/AIDS, malaria and other diseases?	0	0	0	0
9	MDG 7	Ensure environmental sustainability (basic sanitation)?	0	0	0	0
10		Access to improve drinking water source?	0	0	X	0
11		Access to improve sanitation?	X	0	0	0
12	Source	SocioEconomic Overview	Reported Value			
13	WHOSIS	Population (in thousands) total	34256			
14	UNICEF	Population (thousands), 2005, under 18	17214			
15	UNICEF	Population (thousands), 2005, under 5	5736			
16	WHOSIS	Population annual growth rate (%)	2.3			
17	WHOSIS	Population in urban areas (%)	21			
18	WHOSIS	Population living below the poverty line (% living on <US\$1 per day)	0			
19	WHOSIS	Total expenditure on health as percentage of gross domestic product ?	4.1			
20	WHOSIS	General government expenditure on health as percentage of total expenditure on health ?	42.7			
21	UNICEF	% of central government expenditure (1994-2004*) allocated to: health	7			
22	UNICEF	% of routine EPI vaccines financed by government, 2005, total	80			
23	UNICEF	% of central government expenditure (1994-2004*) allocated to: education	26			
24	UNICEF	% of central government expenditure (1994-2004*) allocated to: defence	6			
25	Source	Demographic Overview	Reported Value			
26	WHOSIS	Healthy life expectancy (HALE) at birth (years) males	44			
27	WHOSIS	Healthy life expectancy (HALE) at birth (years) females	45			
28	WHOSIS	Probability of dying (per 1 000 population) between 15 and 60 years (adult mortality rate) males	464			
29	WHOSIS	Probability of dying (per 1 000 population) between 15 and 60 years (adult mortality rate) females	483			
30	WHOSIS	Probability of dying (per 1 000 live births) under five years of age (under-5 mortality rate)	120			
31	WHOSIS	Infant mortality rate (per 1 000 live births)	78			
32	WHOSIS	Neonatal mortality rate (per 1 000 live births)	34			
33	UNICEF	Life expectancy at birth (years), 2005	48			
34	UNICEF	Under-5 mortality rank	37			
35	UNICEF	Under-5 mortality rate, 2005	120			
36	UNICEF	Annual no. of births (thousands), 2005	1361			
37	UNICEF	Annual no. of under-5 deaths (thousands), 2005	163			
38	WHOSIS	Total fertility rate (per woman)	5			
39	WHOSIS	Adolescent fertility rate (%)	11.6			
40	WHOSIS	Adult literacy rate (%)	73.6			
41	UNICEF	Child labour (5-14 years) 1999-2005*, total	27			
42	UNICEF	Child marriage 1987-2005*, total	25			
43	UNICEF	Female genital mutilation/cutting 1997-2005*, daughtersb, total	21			
44	Source	Health Systems Overview	Reported Value			
45	WHOSIS	Physicians (density per 1,000 population) ?	0.14			
46	WHOSIS	Nurses (density per 1,000 population) ?	1.18			
47	WHOSIS	Midwives (density per 1,000 population)	0			
48	WHOSIS	Dentists (density per 1 000 population) ?	0.04			
49	WHOSIS	Pharmacists (density per 1,000 population) ?	0.1			
50	WHOSIS	Public and environmental health workers (density per 1,000 population) ?	0.2			
51	WHOSIS	Community health workers (density per 1,000 population)	0			
52	WHOSIS	Laboratory health workers (density per 1,000 population) ?	0.22			
53	WHOSIS	Other health workers (density per 1,000 population) ?	0.17			
54	WHOSIS	Health management and support workers (density per 1,000 population) ?	0.06			
55	WHOSIS	Hospital beds (per 10,000 population)	19			
56	Source	Preventive Medicine Overview	Reported Value			
57	WHOSIS	Population with sustainable access to improved drinking water sources (%) urban	83			
58	WHOSIS	Population with sustainable access to improved drinking water sources (%) rural	46			
59	WHOSIS	Population with sustainable access to improved sanitation (%) urban	46			
60	WHOSIS	Population with sustainable access to improved sanitation (%) rural	41			
61	UNICEF	Vitamin A supplementation coverage rate (6-59 months), 2004	63			

DemoSocioEcon Overview

	A	B	C	D	E	F
1	Country:	Kenya				
62	UNICEF	% of households consuming iodized salt, 1998-2005*	91			
63	WHOSIS	HIV prevalence among adults aged 15+ years (per 100 000 population)	6125			
64	WHOSIS	Deaths due to HIV/AIDS (per 100 000 population per year)	409			
65	UNICEF	Prevention among young people, % who have comprehensive knowledge of HIV, 1999-2005*, male	47			
66	UNICEF	Prevention among young people, % who have comprehensive knowledge of HIV, 1999-2005*, female	34			
67	GI Hlth At	Influenza -> Influenza-like illness -> Level	Sporadic			
68	WHOSIS	Prevalence of tuberculosis (per 100 000 population)	935.9			
69	WHOSIS	Number of confirmed poliomyelitis cases	2			
70	GI Hlth At	Cholera -> Number of cases -> Total	870			
71	GI Hlth At	Malaria -> Reported Malaria -> a. Reported malaria cases (annual) -> Total	124,197			
72	UNICEF	Malaria 1999-2005*, % under-fives sleeping under a treated mosquito net	5			
73	GI Hlth At	Yellow Fever -> Demography -> Total population -> Total	3,346,700			
74	GI Hlth At	Yellow Fever -> Demography -> % of urban population -> Total	33.10			
75	GI Hlth At	Yellow Fever -> Yellow fever vaccine coverage -> Total	0			
76	GI Hlth At	Blindness, Trachoma -> Active trachoma (TF/TI), all ages -> Total	2,045,762			
77	Source	Useful Data to Take into Consideration and to Help Identify Potential Education Topics	Reported Value			
78	UNICEF	Adult literacy rate, 2000-2004*, male	78			
79	UNICEF	Adult literacy rate, 2000-2004*, female	70			
80	WHOSIS	Prevalence of current tobacco use in adolescents (13-15 years of age) (%)	12.7			
81	WHOSIS	Prevalence of current tobacco smoking among adults (15 years and older) (%) males	27.2			
82	WHOSIS	Prevalence of current tobacco smoking among adults (15 years and older) (%) females	1.9			
83	WHOSIS	Per capita recorded alcohol consumption (litres of pure alcohol) among adults (>=15 years)	1.5			
84	WHOSIS	Prevalence of condom use by young people (15-24 years) at higher risk sex (%) males	47			
85	WHOSIS	Prevalence of condom use by young people (15-24 years) at higher risk sex (%) females	25			
86	WHOSIS	Deaths among children under five years of age due to neonatal causes (%)	24.2			
87	WHOSIS	Deaths among children under five years of age due to HIV/AIDS (%)	14.6			
88	WHOSIS	Deaths among children under five years of age due to diarrhoeal diseases (%)	16.5			
89	WHOSIS	Deaths among children under five years of age due to measles (%)	3.2			
90	WHOSIS	Deaths among children under five years of age due to malaria (%)	13.6			
91	WHOSIS	Deaths among children under five years of age due to pneumonia (%)	19.9			
92	WHOSIS	Deaths among children under five years of age due to injuries (%)	2.7			
93	WHOSIS	Deaths among children under five years of age due to other causes (%)	5.3			
94	GI Hlth At	Tobacco use in adolescents -> Male	21			
95	GI Hlth At	Tobacco use in adolescents -> Female	14			
96	GI Hlth At	Alcohol consumption among adults -> Total	2			
97						

Data Cruncher

	A	B	E	F	H
1	Country's Name	Kenya			
2	Source	Demographic Overview	Reported Value		
3	WHOSIS	Population (in thousands) total	34,256		
4	UNICEF	Population (thousands), 2005, under 18	17,214		
5	UNICEF	Population (thousands), 2005, under 5	5,736		
6					
7	Indicator Definition Hyperlink	Health: Adult	Reported Value	"Normalized" converted to "per 1000"	"Demand" value per 1000
8	WHOSIS	HIV prevalence among adults aged 15+ years (per 100 000 population)	61.25	61.250	61.250
9	GHIHt At	Adult high blood pressure prevalence -> Femal	108	108	108
10	GHIHt At	Adult high blood pressure prevalence -> Mal	118	118	118
11	WHOSIS	Incidence of tuberculosis (per 100 000 population per year)	641	6.410	6.410
12	WHOSIS	Antenatal care coverage - at least four visits (%)	52	520.000	480.000
13	WHOSIS	Contraceptive prevalence rate (%)	39.3	393.000	607.00
14	UNICEF	Female genital mutilation/cutting 1997-2005*, womena (15-49 years), total	32	0.001	0.001
15	WHOSIS	Prevalence of adults (15 years and older) who are obese (%) males		#N/A	#N/A
16	WHOSIS	Prevalence of adults (15 years and older) who are obese (%) females	6.3	63.000	63.000
17	GHIHt At	Cholera -> Number of cases -> Total	870	0.025	0.025
18	GHIHt At	Yellow Fever -> Demography -> % of urban population -> Total	33.10	331.000	331.000
19		Health: Pediatrics			
20	UNICEF	% of infants with low birthweight, 1998-2005*	10	100.000	100.000
21	UNICEF	% of under-fives (1996-2005*) suffering from: underweight, moderate & severe	20	200.000	200.000
22	WHOSIS	Children under five years of age stunted for age (%)	35.8	358.000	358.000
23	UNICEF	% under-fives with suspected pneumonia, 1999-2005*	18	180.000	180.000
24	UNICEF	Paediatric infections, Estimated number of children (0-14 years) living with HIV, 2005 (thousands)	150	4.379	4.379
25	WHOSIS	Children under five years with acute respiratory infection and fever (ARI) taken to facility (%)	45.5	455.000	455.000
26	WHOSIS	% under-fives with diarrhoea receiving oral rehydration and continued feeding, 1998-2005*	33	330.000	330.000
27	GHIHt At	Blindness, Trachoma -> Prevalence (%), ages<10, TF/TFI > Total	30	300.000	300.000
28	WHOSIS	Deaths among children under five years of age due to HIV/AIDS (%)	14.6	146.000	146.000
29	WHOSIS	Deaths among children under five years of age due to measles (%)	3.2	32.000	32.000
30	WHOSIS	Deaths among children under five years of age due to malaria (%)	13.6	136.000	136.000
31	WHOSIS	Deaths among children under five years of age due to injuries (%)	2.7	27.000	27.000
32	WHOSIS	Deaths among children under five years of age due to other causes (%)	5.3	53.000	53.000
33	WHOSIS	Number of confirmed poliomyelitis cases	2	0.0001	0.0001
34		Potential Education & Prevention Opportunities and Information			
35	WHOSIS	Deaths among children under five years of age due to neonatal causes (%)	24.2	242.000	242.000
36	WHOSIS	Deaths among children under five years of age due to HIV/AIDS (%)	14.6	146.000	146.000
37	WHOSIS	Deaths among children under five years of age due to diarrhoeal diseases (%)	16.5	165.000	165.000
38	WHOSIS	Deaths among children under five years of age due to measles (%)	3.2	32.000	32.000
39	WHOSIS	Deaths among children under five years of age due to malaria (%)	13.6	136.000	136.000
40	WHOSIS	Deaths among children under five years of age due to pneumonia (%)	19.9	199.000	199.000
41	WHOSIS	Deaths among children under five years of age due to injuries (%)	2.7	27.000	27.000
42	WHOSIS	Deaths among children under five years of age due to other causes (%)	5.3	53.000	53.000

Data Cruncher

[illegible]

NPS Manpower Model
Humanitarian Medical Missions
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Data Cruncher

	A	B	E	F	H
1	Country's Name:	Kenya			
43	UNICEF	Vitamin A supplementation coverage rate (6-59 months), 2004	63	630.000	370.000
44	UNICEF	% of households consuming iodized salt, 1998-2005*	91	910.000	90.000
45	UNICEF	Malaria 1999-2005*, % under-fives sleeping under a treated mosquito net	5	50.000	950.000
46	WHOSIS	HIV prevalence among adults aged 15+ years (per 100 000 population)	6125	61.250	61.250
47	UNICEF	Prevention among young people, % who have comprehensive knowledge of HIV, 1999-2005*, male	47	470.000	530.000
48	UNICEF	Prevention among young people, % who have comprehensive knowledge of HIV, 1999-2005*, female	34	340.000	660.000
49	UNICEF	Contraceptive prevalence rate (%)	39.3	393.000	607.000
50	WHOSIS	Prevalence of condom use by young people (15-24 years) at higher risk sex (%) males	25	250.000	750.000
51	WHOSIS	Prevalence of condom use by young people (15-24 years) at higher risk sex (%) females	25	250.000	750.000
52	UNICEF	Antenatal care coverage - at least one visit (%)	88	880.000	120.000
53		Immunizations: Potential Need			
54	UNICEF	BCG	92	920.000	80.000
55	UNICEF	DTP1	90	900.000	100.000
56	UNICEF	DTP3	80	800.000	200.000
57	UNICEF	Hep B3	80	800.000	200.000
58	UNICEF	Hib3	80	800.000	200.000
59	UNICEF	MCV	77	770.000	230.000
60	UNICEF	Pol3	77	770.000	230.000
61	UNICEF	PAB	74	740.000	260.000
62	GHIS At	Yellow Fever -> Yellow fever vaccine coverage -> Total		#N/A	#N/A

Data Cruncher

	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
1																					
43	EDUCAT/TRAIN,PT SELF-MGT QUALIFIED EA 30MIN;5-8 PT (02)	0.02	7.400								1	0								0.74	0.00
44	EDUCAT/TRAIN,PT SELF-MGT QUALIFIED EA 30MIN;5-8 PT (02)	0.02	1.800								1	0								0.18	0.00
45	EDUCAT/TRAIN,PT SELF-MGT QUALIFIED EA 30MIN;5-8 PT (02)	0.02	19.000								1	0								1.90	0.00
46	EDUCAT/TRAIN,PT SELF-MGT QUALIFIED EA 30MIN;5-8 PT (02)	0.02	1.225								0	1								0.00	0.12
47	EDUCAT/TRAIN,PT SELF-MGT QUALIFIED EA 30MIN;5-8 PT (02)	0.02	10.600								0	1								0.00	1.06
48	EDUCAT/TRAIN,PT SELF-MGT QUALIFIED EA 30MIN;5-8 PT (02)	0.02	13.200								0	1								0.00	1.32
49	EDUCAT/TRAIN,PT SELF-MGT QUALIFIED EA 30MIN;5-8 PT (02)	0.02	12.140								0	1								0.00	1.21
50	EDUCAT/TRAIN,PT SELF-MGT QUALIFIED EA 30MIN;5-8 PT (02)	0.02	15.000								0	1								0.00	1.50
51	EDUCAT/TRAIN,PT SELF-MGT QUALIFIED EA 30MIN;5-8 PT (02)	0.02	15.000								0	1								0.00	1.50
52	EDUCAT/TRAIN,PT SELF-MGT QUALIFIED EA 30MIN;5-8 PT (02)	0.02	2.400								0	1								0.00	0.24
53																					
54	IMMUN ADMIN,IVACCINE,I/COMBINATION VACCINE/TOXOID (0.17)	0.17	13.600								1	0								1.36	0.00
55	IMMUN ADMIN,IVACCINE,I/COMBINATION VACCINE/TOXOID (0.17)	0.17	17.000								1	0								1.70	0.00
56	IMMUN ADMIN,IVACCINE,I/COMBINATION VACCINE/TOXOID (0.17)	0.17	34.000								1	0								3.40	0.00
57	IMMUN ADMIN,IVACCINE,I/COMBINATION VACCINE/TOXOID (0.17)	0.17	34.000								1	0								3.40	0.00
58	IMMUN ADMIN,IVACCINE,I/COMBINATION VACCINE/TOXOID (0.17)	0.17	34.000								1	0								3.40	0.00
59	IMMUN ADMIN,IVACCINE,I/COMBINATION VACCINE/TOXOID (0.17)	0.17	39.100								1	0								3.91	0.00
60	IMMUN ADMIN,IVACCINE,I/COMBINATION VACCINE/TOXOID (0.17)	0.17	39.100								1	0								3.91	0.00
61	IMMUN ADMIN,IVACCINE,I/COMBINATION VACCINE/TOXOID (0.17)	0.17	44.200								1	0								4.42	0.00
62	IMMUN ADMIN,IVACCINE,I/COMBINATION VACCINE/TOXOID (0.17)	0.17	#N/A								1	0								#N/A	#N/A

Data Cruncher

	A	B	E	F	H
1	Country's Name	Kenya			
63		"per 100,000 population" values: $\left[\left(\frac{\text{Reported value}}{100,000} \right) * 1000 \right]$			
		"(%)" values: $\left[\left(\frac{\text{Reported value}}{100} \right) * 1000 \right]$			
64		"total" values: $\left[\left(\left(\frac{\text{Reported value} * 100}{(\text{Population (in thousands) total}) * 1000} \right) * 1000 \right) / 100 \right]$			
65					
66		"thousands" values: $\left[\left(\left(\frac{(\text{Reported value} * 1000) * 100}{(\text{Population (in thousands) total}) * 1000} \right) * 1000 \right) / 100 \right]$			
67					
68					
69		Remaining unmet need: $\left[\left(1 - \left(\frac{\text{Reported value}}{100} \right) \right) * 1000 \right]$			
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					

Data Cruncher

	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC					
1																										
63									Kenya												Estimated Manpower Requirement by specialty for a 7.5 hr work day				Non-Providers	
64									Total Providers					Pediatrics / General Adolescent	Family Practice	Int Med / Infectious Disease	OB / GYN	Oral & Maxillofacial Surgery	Ophthalmology	Comprehensive Dentistry	Preventive Medicine	Public Health Education				
65									103.4	Per 1000 pts:	54.8	25.3	3.2	10.3	0.0	9.8	0.0	28.6	8.7							
66									77.6	Per 750 pts:	41.1	19.0	2.4	7.7	0.0	7.4	0.0	21.4	6.5							
67									51.7	Per 500 pts:	27.4	12.7	1.6	5.1	0.0	4.9	0.0	14.3	4.3							
68									25.9	Per 250 pts:	13.7	6.3	0.8	2.6	0.0	2.5	0.0	7.1	2.2							
69									Utilizing NAVMED FY09 Recommended Clinical Support Staff for Provider FTE																	
70									Support Staff	FTE:	2.00	2.00	1.25	3.00	1.25	2.20	2.00	Total								
71										Per 1000 pts:	109.6	50.6	4.0	30.8	0.0	21.6	0.0	216.6								
72										Per 750 pts:	82.2	38.0	3.0	23.1	0.0	16.2	0.0	162.5								
73										Per 500 pts:	54.8	25.3	2.0	15.4	0.0	10.8	0.0	108.3								
74										Per 250 pts:	27.4	12.7	1.0	7.7	0.0	5.4	0.0	54.2								
75									Support Staff	Recommended Clinical Support Staff for Provider FTE																
76									Enter your own Estimated FTE:	FTE:	1.50	1.50	1.50	1.50	1.50	1.50	1.50	Total								
77										Per 1000 pts:	82.2	38.0	4.8	15.4	0.0	14.7	0.0	155.1								
78										Per 750 pts:	61.7	28.5	3.6	11.5	0.0	11.0	0.0	116.3								
79										Per 500 pts:	41.1	19.0	2.4	7.7	0.0	7.4	0.0	77.6								
80										Per 250 pts:	20.6	9.5	1.2	3.8	0.0	3.7	0.0	38.8								
81																										

Indicator Definitions

A	B	C	E
1 WHO	Definition of Indicators and Data Sources	http://www.who.int/reproductive_indicators/definitions/indicators.asp	
2 WHO	Definitions of Health Workforce Data	http://www.who.int/globalalliances/HRH/HTML/Dhm.htm	
3 UNICEF	Millennium Development Goal (MDG) indicator	http://www.unicef.org/progressforchildren/2007/m6/index_41856.htm	
Hyperlink to Source	Indicator	Indicator Definitions (Obtained directly from the listed source 16Mar08)	Source
4			
5 UNICEF	% of population below \$1 a day -	Percentage of population living on less than \$1.08 a day at 1993 international prices (equivalent to \$1 a day in 1985 prices, adjusted for purchasing power parity).	http://www.unicef.org/info/country/stats_popup7.html
6 UNICEF	% under-fives sleeping under a treated bednet	Percentage of children (0-4 years) who slept under an insecticide-impregnated bednet	http://www.unicef.org/info/country/stats_popup3.html
7 UNICEF	% under-fives with ARI taken to health provider -	Percentage of children (0-4 years) with ARI in the last two weeks taken to an appropriate health provider	http://www.unicef.org/info/country/stats_popup3.html
8 UNICEF	% under-fives with ARI -	Percentage of children (0-4 years) with acute respiratory infection (ARI) in the last two weeks	http://www.unicef.org/info/country/stats_popup3.html
9 UNICEF	% under-fives with fever receiving anti-malarial drugs	Percentage of children (0-4 years) who were ill with fever in the last two weeks and received any appropriate (locally defined) antimalarial drugs	http://www.unicef.org/info/country/stats_popup3.html
10 UNICEF	Adolescent fertility rate	Annual number of live births to girls aged 15-19 per 1,000 girls aged 15-19	http://www.childinfo.org/eddb/fertility/index.htm
11 UNICEF	Adult literacy rate -	Percentage of persons aged 15 and over who can read and write.	http://www.unicef.org/info/country/stats_popup1.html
12 UNICEF	Adult prevalence rate -	Percentage of adults (15-49 years) living with HIV/AIDS as of end-2001	http://www.unicef.org/info/country/stats_popup1.html
13 UNICEF	Adults and children living with HIV/AIDS (0-49 years), end 2001 -	Estimated number of adults and children living with HIV/AIDS at the end of 2001.	http://www.unicef.org/info/country/stats_popup4.html
14 UNICEF	Antenatal care -	Percentage of women aged 15-49 years attended at least once during pregnancy by skilled health personnel (doctors, nurses or midwives).	http://www.unicef.org/info/country/stats_popup8.html
15 UNICEF	Birth registration -	Percentage of children less than five years of age that were registered at the moment of the survey. The numerator of this indicator includes children whose birth certificate was seen by the interviewer or whose mother or caretaker says the birth has been registered.	http://www.unicef.org/info/country/stats_popup9.html
16 UNICEF	Child Labour	<p>Agess 5-11: At least one hour of economic work or 28 hours of domestic work per week</p> <p>Agess 12-14: At least 14 hours of economic work or 28 hours of domestic work per week</p> <p>Agess 15-17: At least 43 hours of economic or domestic work per week</p>	http://childinfo.org/areas/childlabour/
17 UNICEF	Child labour -	Percentage of children aged 5 to 14 years of age involved in child labour activities at the moment of the survey. A child is considered to be involved in child labour activities under the following classification: (a) children 5 to 11 years of age that during the week preceding the survey did at least one hour of economic activity or at least 28 hours of domestic work; and (b) children 12 to 14 years of age that during the week preceding the survey did at least 14 hours of economic activity or at least 42 hours of economic activity and domestic work combined.	http://www.unicef.org/info/country/stats_popup9.html
18 UNICEF	Child labour background variables -	Sex of the child; urban or rural place of residence; poorest 20% or richest 20% of the population constructed from household assets (a more detailed description of the household wealth estimation procedure can be found at www.childinfo.org); mother's education, reflecting mothers with and without some level of education.	http://www.unicef.org/info/country/stats_popup9.html
19 UNICEF	Children orphaned by AIDS -	Estimated number of children (0-14 years) as of end-2001, who have lost one or both parents to AIDS.	http://www.unicef.org/info/country/stats_popup4.html
20 UNICEF	Comprehensive knowledge of HIV -	Percentage of young women (15-24 years) who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission, and who know that a healthy-looking person can have HIV.	http://www.unicef.org/info/country/stats_popup4.html
21 UNICEF	Condom use at last high-risk sex -	Percentage of young men and women (15-24 years) who say they used a condom the last time they had sex with a non-marital, non-cohabiting partner, of those who have had sex with such a partner in the last 12 months.	http://www.unicef.org/info/country/stats_popup4.html
22 UNICEF	Contraceptive prevalence -	Percentage of women in union aged 15-49 years currently using contraception	http://www.unicef.org/info/country/stats_popup8.html
23 UNICEF	Crude birth rate -	Annual number of births per 1,000 population	http://www.unicef.org/info/country/stats_popup6.html
24 UNICEF	Crude death rate -	Annual number of deaths per 1,000 population.	http://www.unicef.org/info/country/stats_popup6.html

Indicator Definitions

A	B	C	E
25 UNICEF	Debt service -	The sum of interest payments and repayments of principal on external public and publicly guaranteed long-term debts.	http://www.unicef.org/infobycountry/stats_popup7.html
26 UNICEF	DPT3 -	Percentage of infants that received three doses of diphtheria, pertussis (whooping cough) and tetanus vaccine.	http://www.unicef.org/infobycountry/stats_popup3.html
27 UNICEF	EPI -	Expanded Programme on Immunization: The immunizations in this programme include those against TB, DPT, polio and measles, as well as protecting babies against neonatal tetanus by vaccination of pregnant women. Other vaccines (e.g. against hepatitis B or yellow fever) may be included in the programme in some countries.	http://www.unicef.org/infobycountry/stats_popup3.html
28 UNICEF	Estimated number of people living with HIV/AIDS -	Estimated number of adults and children living with HIV/AIDS end-2001	http://www.unicef.org/infobycountry/stats_popup4.html
	Female genital mutilation/cutting -	(a) Women – the percentage of women aged 15 to 49 years of age who have been mutilated/cut. (b) Daughters – the percentage of women aged 15 to 49 with at least one mutilated/cut daughter. Female genital mutilation/cutting (FGM/C) involves the cutting or alteration of the female genitalia for social reasons. Generally, there are three recognized types of FGM/C: clitoridectomy, excision and infibulation. Clitoridectomy is the removal of the prepuce with or without excision of all or part of the clitoris. Excision is the removal of the prepuce and clitoris along with all or part of the labia minora. Infibulation is the most severe form and consists of removal of all or part of the external genitalia, followed by joining together of the two sides of the labia minora using threads, thorns or other materials to narrow the vaginal opening. A more detailed analysis of these data can also be found at www.measuresdhs.com and www.measurecommunication.org	http://www.unicef.org/infobycountry/stats_popup9.html
29 UNICEF	GDP per capita -	Gross domestic product (GDP) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output. GDP per capita is gross domestic product divided by mid-year population. Growth is calculated from constant price GDP data in local currency.	http://www.unicef.org/infobycountry/stats_popup7.html
30 UNICEF	GNI per capita -	Gross national income (GNI) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. GNI per capita is gross national income divided by mid-year population. GNI per capita in US dollars is converted using the World Bank Atlas method.	http://www.unicef.org/infobycountry/stats_popup1.html
31 UNICEF	Government funding of vaccines -	Percentage of vaccines routinely administered in a country to protect children that are financed by the national government (including loans)	http://www.unicef.org/infobycountry/stats_popup3.html
32 UNICEF	Gross primary or secondary school enrolment ratio -	The number of children enrolled in a level (primary or secondary), regardless of age, divided by the population of the age group that officially corresponds to the same level	http://www.unicef.org/infobycountry/stats_popup5.html
33 UNICEF	Gross enrolment ratios: females as % of males -	Girls' gross enrolment ratio divided by that of boys, as a percentage. The gross enrolment ratio is the number of children enrolled in a schooling level (primary or secondary), regardless of age, divided by the population of the age group that officially corresponds to that level	http://www.unicef.org/infobycountry/stats_popup8.html
34 UNICEF	HepB3 -	Percentage of infants that received three doses of hepatitis B vaccine	http://www.unicef.org/infobycountry/stats_popup3.html
35 UNICEF	HIV prevalence among pregnant women -	Percentage of blood samples taken from pregnant women aged 15-24 that test positive for HIV during 'unlinked anonymous sentinel surveillance' at selected antenatal clinics	http://www.unicef.org/infobycountry/stats_popup4.html
36 UNICEF	Income share -	Percentage of income received by the 20 per cent of households with the highest income and by the 40 per cent of households with the lowest income	http://www.unicef.org/infobycountry/stats_popup1.html
37 UNICEF	Infant mortality rate -	Probability of dying between birth and exactly one year of age expressed per 1,000 live births	http://www.unicef.org/infobycountry/stats_popup1.html
38 UNICEF	Infant mortality rate (IMR)	The infant mortality rate is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of one if subject to current age-specific mortality rates.	http://www.childinfo.org/areas/childmortality/
39 UNICEF	Iodized salt consumption	Proportion of households consuming adequately iodized salt (1.5 parts per million or more)	http://childinfo.org/areas/idd/
40 UNICEF	Know condom can prevent HIV -	Percentage of young women and men (15-24 years) who report through prompted questions that condom use can prevent HIV transmission.	http://www.unicef.org/infobycountry/stats_popup4.html
41 UNICEF	Know healthy-looking person can have HIV -	Percentage of young men and women (15-24 years) who know that a healthy-looking person can have the AIDS virus.	http://www.unicef.org/infobycountry/stats_popup4.html
42 UNICEF	Life expectancy at birth -	The number of years newborn children would live if subject to the mortality risks prevailing for the cross-section of population at the time of their birth	http://www.unicef.org/infobycountry/stats_popup1.html
43 UNICEF	Low birthweight	Less than 2,500 grams	http://www.unicef.org/infobycountry/stats_popup2.html

Indicator Definitions

A	B	C	E
45 UNICEF	Malaria % under-fives sleeping under a bednet -	Percentage of children (0-4 years) who slept under a bednet.	http://www.childinfo.org/areas/malaria/maldata.php
46 UNICEF	Malaria % under-fives sleeping under a treated bednet -	Percentage of children (0-4 years) who slept under an insecticide-impregnated bednet	http://www.childinfo.org/areas/malaria/maldata.php
47 UNICEF	Malaria % under-fives with fever receiving anti-malarial drugs -	Percentage of children (0-4 years) who were ill with fever in the last two weeks and received any appropriate (locally defined) antimalarial drugs	http://www.childinfo.org/areas/malaria/maldata.php?cat=1
48 UNICEF	Maternal mortality ratio -	Annual number of deaths of women from pregnancy-related causes per 100,000 live births. This reported column shows country reported figures that are not adjusted for underreporting and misclassification	http://www.unicef.org/infobycountry/stats_popup8.html
49 UNICEF	Net primary school attendance -	Percentage of children in the age group that officially corresponds to primary schooling who attend primary school. These data come from national household surveys	http://www.unicef.org/infobycountry/stats_popup5.html
50 UNICEF	Net primary school enrolment ratio -	The number of children enrolled in primary school who belong to the age group that officially corresponds to primary schooling, divided by the total population of the same age group	http://www.unicef.org/infobycountry/stats_popup5.html
51 UNICEF	Net primary school enrolment/attendance -	Derived from net primary school enrolment rates as reported by UNESCOUIS (UNESCO Institute of Statistics) and from national household survey reports of attendance at primary school	http://www.unicef.org/infobycountry/stats_popup5.html
52 UNICEF	ODA -	Official development assistance	http://www.unicef.org/infobycountry/stats_popup7.html
53 UNICEF	Oral rehydration rate -	Percentage of children under five with diarrhoea in the last two weeks who received increased fluids and continued feeding during the episode	http://www.unicef.org/infobycountry/stats_popup3.html
54 UNICEF	Orphan school attendance ratio -	Percentage of children (10-14 years) who lost both biological parents and who are currently attending school as a percentage of non-orphaned children of the same age who live with at least one parent and who are attending school	http://www.unicef.org/infobycountry/stats_popup4.html
55 UNICEF	Primary school entrants reaching grade five -	Percentage of the children entering the first grade of primary school who eventually reach grade five.	http://www.unicef.org/infobycountry/stats_popup5.html
UNICEF	Reduction since 1990(%) -	Percentage reduction in the under-five mortality rate (USMR) from 1990 to 2002. The United Nations Millennium Declaration in 2000 established a goal of a two-thirds (67%) reduction in USMR from 1990 to 2015. Hence this indicator provides a current assessment of progress towards this goal.	http://www.unicef.org/infobycountry/stats_popup10.html
56 UNICEF	Skilled attendant at delivery -	Percentage of births attended by skilled health personnel (doctors, nurses or midwives)	http://www.unicef.org/infobycountry/stats_popup8.html
57 UNICEF	Stunting -	Proportion of under-fives falling below minus 2 and minus 3 standard deviations from the median height-for-age of the reference population	http://www.childinfo.org/areas/malnutrition/
58 UNICEF	Total fertility rate -	The number of children that would be born per woman if she were to live to the end of her child-bearing years and bear children at each age in accordance with prevailing age-specific fertility rates	http://www.unicef.org/infobycountry/stats_popup6.html
60 UNICEF	Under-five mortality rate -	Probability of dying between birth and exactly five years of age expressed per 1,000 live births	http://www.unicef.org/infobycountry/stats_popup1.html
UNICEF	Underweight -	Moderate and severe - below minus two standard deviations from median weight for age of reference population; severe - below minus three standard deviations from median weight for age of reference population.	http://www.childinfo.org/areas/malnnutrition/
61 UNICEF	Urban population -	Percentage of population living in urban areas as defined according to the national definition used in the most recent population census.	http://www.unicef.org/infobycountry/stats_popup6.html
63 UNICEF	Vitamin A -	Percentage of children aged 6-59 months who have received at least one high dose of vitamin A capsules in 2001.	http://www.unicef.org/infobycountry/stats_popup2.html
UNICEF	Wasting -	Moderate and severe - below minus two standard deviations from median weight for height of reference population.	http://www.unicef.org/infobycountry/stats_popup2.html
65 WHOSIS	Adolescent fertility rate (%)	.	http://www.who.int/whosis/database/core/core_select.cfm
66 WHOSIS	Adult literacy rate (%)	.	http://www.who.int/whosis/database/core/core_select.cfm

Indicator Definitions

A	B	C	E
WHOSIS	Age-standardized mortality rate for non-communicable diseases (per 100 000 population) ?	The age-standardized mortality rate is a weighted average of the age-specific mortality rates per 100 000 persons, where the weights are the proportions of persons in the corresponding age groups of the WHO standard population. The WHO World Standard Population was based on the average world population structure for the period 2000-2025 as assessed every two years by the United Nations Population Division (UNPD) for each country by age and sex. Estimates from the UNPD 1998 assessment (being the latest one at the time the WHO Standard Population was chosen) based on population censuses and other demographic sources, adjusted for enumeration errors were used. The use of an average world population as well as a time series of observations removes the effects of historical events such as wars and famine on population age composition. WHO Standard Population is defined to reflect the average age structure of the world's population over the next generation, from the year 2000 to 2025.	http://www.who.int/whosis/indicators/2007/MorAgeStandardized/en/index.html
67			
WHOSIS	Antenatal care coverage - at least () visit (%) ?	Percentage of women who used antenatal care provided by skilled health personnel for reasons related to pregnancy at least once during pregnancy, as a percentage of live births in a given time period.	http://www.who.int/whosis/indicators/2007/ANC/en/index.html
68			
WHOSIS	Births attended by skilled health personnel (%) ?	Percentage of live births attended by skilled health personnel in a given period of time.	http://www.who.int/whosis/indicators/2007/BirthsAttended/en/index.html
69			
WHOSIS	Births attended by skilled health personnel (%) rural ?	Percentage of live births attended by skilled health personnel in a given period of time. A skilled birth attendant is an accredited health professional—such as a midwife, doctor or nurse—who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns. Traditional birth attendants, trained or not, are excluded from the category of skilled attendant at delivery.	http://www.who.int/whosis/indicators/2007/BirthsAttended/en/index.html
70			
WHOSIS	Births by Caesarean section (%) ?	Percentage of births by caesarean section among all live births in a given time period.	http://www.who.int/whosis/indicators/2007/BirthsCSection/en/index.html
71			
WHOSIS	Children 6-59 months of age who received vitamin A supplementation (%) ?	Proportion of children aged 6-59 months who received a high-dose vitamin A supplement within the last 6 months.	http://www.who.int/whosis/indicators/2007/VitaminASupplementC/en/index.html
72			
WHOSIS	Children under five years of age overweight for age (%) ?	Percentage of overweight (weight-for-height greater than +2 SD of the WHO Child Growth Standards median) among children aged less than 5 years.	http://www.who.int/whosis/indicators/2007/StuntedUnderweightOverweightChild/en/index.html
73			
WHOSIS	Children under five years of age sleeping under insecticide-treated nets (%) ?	Percentage of children under five years of age in malaria endemic areas who slept under an ITN the previous night. ITNs being defined as a mosquito net that has been treated within 12 months or is a long-lasting insecticidal net (LLIN).	http://www.who.int/whosis/indicators/2007/ITNChild/en/index.html
74			
WHOSIS	Children under five years of age stunted for age (%) ?	Percentage of stunting (height-for-age less than -2 SD of the WHO Child Growth Standards median) among children aged less than 5 years.	http://www.who.int/whosis/indicators/2007/StuntedUnderweightOverweightChild/en/index.html
75			
WHOSIS	Children under five years of age underweight for age (%) ?	Percentage of underweight (weight-for-age less than -2 standard deviations (SD) of the WHO Child Growth Standards median) among children aged less than 5 years.	http://www.who.int/whosis/indicators/2007/StuntedUnderweightOverweightChild/en/index.html
76			
WHOSIS	Children under five years of age with diarrhoea who received oral rehydration therapy (ORT) (%) ?	Proportion of children aged 0-59 months who had diarrhoea in the last 2 weeks and were treated with oral rehydration salts or an appropriate household solution (ORT)	http://www.who.int/whosis/indicators/2007/DiarrhoeaChildORTFlu/en/index.html
77			
WHOSIS	Children under five years of age with fever who received treatment with any antimalarial (%) ?	Percentage of the population in malaria-risk areas aged less than 5 years with fever being treated with effective antimalarial drugs. Numerator (N): the number of children aged less than 5 years in malaria-risk areas with fever being treated with effective antimalarial drugs. Denominator (D): the number of children aged less than 5 years in malaria-risk areas	http://www.who.int/whosis/indicators/2007/AntimalarialFeverChild/en/index.html
78			
WHOSIS	Children under five years with acute respiratory infection and fever (ARI) taken to facility (%) ?	Proportion of children aged 0-59 months who had 'presumed pneumonia' (ARI) in the last 2 weeks and were taken to an appropriate health-care provider.	http://www.who.int/whosis/indicators/2007/ARIClildFacility/en/index.html
79			
	Community health workers (number) ?	Community health workers: includes traditional medicine practitioners, faith healers, assistant/community health-education workers, community health officers, family health workers, lady health visitors, health extension package workers, community midwives, institution-based personal care workers and traditional birth attendants.	http://www.who.int/whosis/indicators/2007/HumanResourcesForHealth/en/index.html
80			
WHOSIS	Contraceptive prevalence rate (%) ?	Contraceptive prevalence rate is the proportion of women of reproductive age who are using (or whose partner is using) a contraceptive method at a given point in time	http://www.who.int/whosis/indicators/2007/ContraceptivePrevalence/en/index.html
81			

Indicator Definitions

A	B	C	E
82 WHOSIS	Cost of a 3-minute fixed-line phone call (US\$)	.	http://www.who.int/whosis/database/core/core_select.cfm
83 WHOSIS	Cost of a 3-minute mobile phone call (US\$)	.	http://www.who.int/whosis/database/core/core_select.cfm
84 WHOSIS	Coverage of vital registration of deaths (%)	.	http://www.who.int/whosis/database/core/core_select.cfm
	Deaths among children under five years of age due to neonatal causes (%) ?	Under-five mortality rate is the probability of a child born in a specific year or period dying before reaching the age of five, if subject to age-specific mortality rates of that period.	http://www.who.int/whosis/indicators/2007MortChild/en/index.htm
85 WHOSIS	Deaths due to HIV/AIDS (per 100 000 population per year)	Infant mortality rate is the probability of a child born in a specific year or period dying before reaching the age of one, if subject to age-specific mortality rates of that period	http://www.who.int/whosis/indicators/2007MortAIDSNumber/en/index.html
86 WHOSIS	Deaths due to tuberculosis among HIV-negative people (per 100 000 population) ?	Estimated mortality due to HIV/AIDS is the number of adults and children that have died in a specific year, based on the modelling of HIV surveillance data using standard and appropriate tools	http://www.who.int/whosis/indicators/2007MortTB/en/index.html
87 WHOSIS	Deaths due to tuberculosis among HIV-positive people (per 100 000 population) ?	The estimated number of deaths attributable to TB in a given time period. Expressed in this database as deaths per 100 000 population per year. Includes deaths from all forms of TB, and deaths from TB in people with HIV.	http://www.who.int/whosis/indicators/2007MortTB/en/index.html
88 WHOSIS	Deaths due to tuberculosis among HIV-negative people (per 100 000 population) ?	The estimated number of deaths attributable to TB in a given time period. Expressed in this database as deaths per 100 000 population per year. Includes deaths from all forms of TB, and deaths from TB in people with HIV.	http://www.who.int/whosis/indicators/2007MortTB/en/index.html
89 WHOSIS	Dentists (number) ?	Dentists: includes dentists, dental assistants and dental technicians.	http://www.who.int/whosis/indicators/2007HumanResourcesForHealth/en/index.html
90 WHOSIS	External resources for health as percentage of total expenditure on health ?	External resources (ExHRE) includes all grants and loans for health goods and services, passing through governments or private entities, in cash or in kind.	http://www.who.int/whosis/indicators/2007NationalHealthAccounts/en/index.html
WHOSIS	General government expenditure on health as percentage of total expenditure on health ?	General government expenditure on health (GGHE) comprises the direct outlays earmarked for the enhancement of the health status of the population and/or the distribution of medical-care goods and services in the population by the following financing agents: central/federal, state/provincial/regional, and local/municipal authorities; extrabudgetary agencies; social security schemes; parastatals. All can be financed through domestic funds or through external resources.	http://www.who.int/whosis/indicators/2007NationalHealthAccounts/en/index.html
91 WHOSIS	Gross national income per capita (PPP international \$)	.	http://www.who.int/whosis/database/core/core_select.cfm
92 WHOSIS	Health management and support workers (number) ?	Health management and support workers: includes general managers, statisticians, lawyers, accountants, medical secretaries, gardeners, computer technicians, ambulance staff, cleaning staff, building and engineering staff, skills administrative staff and general support staff.	http://www.who.int/whosis/indicators/2007HumanResourcesForHealth/en/index.html
93 WHOSIS	Healthy life expectancy (HALE) at birth (years)	Average number of years that a person can expect to live in "full health" by taking into account years lived in less than full health due to disease and/or injury	http://www.who.int/whosis/indicators/2007HALE/en/index.html
94 WHOSIS	HIV prevalence among adults aged 15+ years (per 100 000 population) ?	Percentage of adults 15–49 who are HIV infected.	http://www.who.int/whosis/indicators/2007HIVPrevalence/en/index.html
95 WHOSIS	Hospital beds (per 10 000 population)	Estimated number of TB cases arising in a given time period (expressed here as rate per 100 000 population/year). All forms of TB are included, including cases in people with HIV.	http://www.who.int/whosis/database/core/core_select.cfm
96 WHOSIS	Incidence of tuberculosis (per 100 000 population per year)	Under-five mortality rate is the probability of a child born in a specific year or period dying before reaching the age of five, if subject to age-specific mortality rates of that period.	http://www.who.int/whosis/indicators/2007TBIncidenceRate/en/index.html
97 WHOSIS	Infant mortality rate (per 1 000 live births) ?	Infant mortality rate is the probability of a child born in a specific year or period dying before reaching the age of one, if subject to age-specific mortality rates of that period.	http://www.who.int/whosis/indicators/2007MortChild/en/index.htm
98 WHOSIS	Information and communication technology access	.	http://www.who.int/whosis/database/core/core_select.cfm
99 WHOSIS		.	

Indicator Definitions

	A	B	C	E
100	WHOSIS	Information and communication technology connectivity		http://www.who.int/whosis/database/core/core_select.cfm
101	WHOSIS	Information and communication technology diffusion		http://www.who.int/whosis/database/core/core_select.cfm
102	WHOSIS	Information and communication technology expenditure (% of GDP)		http://www.who.int/whosis/database/core/core_select.cfm
103	WHOSIS	Information and communication technology policy		http://www.who.int/whosis/database/core/core_select.cfm
104	WHOSIS	Internet hosts per 100 000 inhabitants		http://www.who.int/whosis/database/core/core_select.cfm
105	WHOSIS	Internet users per 1000 inhabitants		http://www.who.int/whosis/database/core/core_select.cfm
106	WHOSIS	Laboratory health workers (number) ?	Laboratory health workers includes laboratory scientists, laboratory assistants, laboratory technicians and radiographers.	http://www.who.int/whosis/indicators/2007/HumanResourcesForHealth/en/index.html
107	WHOSIS	Life expectancy at birth (years)	Average number of years that a newborn is expected to live if current mortality rates continue to apply.	http://www.who.int/whosis/indicators/2007/HumanResourcesForHealth/en/index.html
108	WHOSIS	Main telephone lines per 100 inhabitants		http://www.who.int/whosis/database/core/core_select.cfm
109	WHOSIS	Maternal mortality ratio (per 100 000 live births) ?	Number of maternal deaths per 100 000 live births during a specified time period, usually 1 year.	http://www.who.int/whosis/indicators/maternalmortality/en/index.html
110	WHOSIS	Measles immunization coverage among one-year-olds (%) rural ?	Measles immunization coverage is the percentage of one-year-olds who have received at least one dose of measles containing vaccine in a given year. For countries recommending the first dose of measles among children older than 12 months of age, the indicator is calculated as the proportion of children less than 24 months of age receiving one dose of measles containing vaccine.	http://www.who.int/whosis/indicators/2007/immunized/en/index.html
111	WHOSIS	Midwives (number) ?	Midwives: includes professional midwives, auxiliary midwives and enrolled midwives. Traditional birth attendants are counted as community health workers (see below). While much effort has been made to ensure accuracy, caution must be exercised in using the data for nurses and midwives; for some countries the available information does not distinguish clearly between the two groups.	http://www.who.int/whosis/indicators/2007/HumanResourcesForHealth/en/index.html
112	WHOSIS	Mobile phone subscribers per 100 inhabitants		http://www.who.int/whosis/database/core/core_select.cfm
113	WHOSIS	Neonatal mortality rate (per 1 000 live births) ?	Number of deaths during the first 28 completed days of life per 1000 live births in a given year or period.	http://www.who.int/whosis/indicators/2007/MortNeoBoth/en/index.html
114	WHOSIS	Net primary school enrolment ratio females (%)		http://www.who.int/whosis/database/core/core_select.cfm
115	WHOSIS	Net primary school enrolment ratio males (%)		http://www.who.int/whosis/database/core/core_select.cfm
116	WHOSIS	Newborns with low birth weight (%) ?	Percentage of live-born infants that weigh less than 2500 g, for a given time period.	http://www.who.int/whosis/indicators/2007/LBW/en/index.html
117	WHOSIS	Number of confirmed poliomyelitis cases ?	Suspected polio cases (acute-flaccid paralysis - AFP, other paralytic diseases, and contacts with polio cases) that are confirmed by laboratory examination or are consistent with polio infection.	http://www.who.int/whosis/indicators/2007/PolioCases/en/index.html
118	WHOSIS	Nurses (number) ?	Nurses: includes professional nurses, auxiliary nurses, enrolled nurses and other nurses, such as dental nurses and primary care nurses.	http://www.who.int/whosis/indicators/2007/HumanResourcesForHealth/en/index.html
119	WHOSIS	One-year-olds immunized with one dose of measles (%) ?	Measles immunization coverage is the percentage of one-year-olds who have received at least one dose of measles containing vaccine in a given year. For countries recommending the first dose of measles among children older than 12 months of age, the indicator is calculated as the proportion of children less than 24 months of age receiving one dose of measles containing vaccine.	http://www.who.int/whosis/indicators/2007/Immunized/en/index.html
120	WHOSIS	One-year-olds immunized with three doses of diphtheria tetanus toxoid and pertussis (DTP3) (%) ?	DTP3 immunization coverage is the percentage of one-year-olds who have received three doses of, the combined diphtheria and tetanus toxoid and pertussis vaccine in a given year	http://www.who.int/whosis/indicators/2007/immunized/en/index.html

Indicator Definitions

	A	B	C	E
121	<u>WHOSIS</u>	One-year-olds immunized with three doses of Hepatitis B (HepB3) (%) ?	HepB3 immunization coverage is the percentage of one-year-olds who have received three doses of Hepatitis B3 vaccine in a given year.	http://www.who.int/whosis/indicators/2007/Immunization/en/index.html
122	<u>WHOSIS</u>	Other health workers (number) ?	Other health workers: includes a large number of occupations such as dieticians and nutritionists, medical assistants, occupational therapists, operators of medical and dentistry equipment, optometrists and opticians, physiotherapists, podiatrists, prosthetic/orthotic engineers, psychologists, respiratory therapists, speech pathologists, medical trainees and interns.	http://www.who.int/whosis/indicators/2007/HumanResourcesForHealth/en/index.html
123	<u>WHOSIS</u>	Out-of-pocket expenditure as percentage of private expenditure on health ?	Household out-of-pocket spending (OOPs): the direct outlays of households, including gratuities and in-kind payments made to health practitioners and to suppliers of pharmaceuticals, therapeutic appliances and other goods and services. This includes household direct payments to public and private providers of health-care services, non-profit institutions, and non-reimbursable cost-sharing, such as deductibles, copayments and fees for services.	http://www.who.int/whosis/indicators/2007/NationalHealthAccounts/en/index.html
124	<u>WHOSIS</u>	People with advanced HIV infection receiving antiretroviral (ARV) combination therapy (%) ?	Percentage of adults and children with advanced HIV infection receiving antiretroviral therapy according to nationally approved treatment protocol (or WHO/Tait UN Programme on HIV and AIDS standards) among the estimated number of people with advanced HIV infection.	http://www.who.int/whosis/indicators/2007/ARV/en/index.html
125	<u>WHOSIS</u>	Per capita recorded alcohol consumption (litres of pure alcohol) among adults (>=15 years) ?	Prevalence of current tobacco-smoking (including cigarettes, cigars, pipes or any other smoked tobacco products). Current smoking includes both daily and non-daily or occasional smoking.	http://www.who.int/whosis/indicators/2007/AlcoholConsumption/en/index.html
126	<u>WHOSIS</u>	Per capita total expenditure on health at average exchange rate (US\$) ?	Exchange rate: the annual average or year-end number of units at which a currency is traded in the banking system.	http://www.who.int/whosis/indicators/2007/NationalHealthAccounts/s2/en/index.html
127	<u>WHOSIS</u>	Per capita total expenditure on health at international dollar rate ?	International dollars are derived by dividing local currency units by an estimate of their purchasing power parity (PPP) compared with US dollars, i.e. the measure that minimizes the consequences of differences in prices between countries.	http://www.who.int/whosis/indicators/2007/NationalHealthAccounts/s2/en/index.html
128	<u>WHOSIS</u>	Personal computers per 1000 inhabitants	.	http://www.who.int/whosis/database/core/select.cfm
129	<u>WHOSIS</u>	Pharmacists (number) ?	Pharmacists: includes pharmacists, pharmaceutical assistants and pharmaceutical technicians.	http://www.who.int/whosis/indicators/2007/HumanResourcesForHealth/en/index.html
130	<u>WHOSIS</u>	Physicians (number) ?	Physicians: includes generalists and specialists.	http://www.who.int/whosis/indicators/2007/HumanResourcesForHealth/en/index.html
131	<u>WHOSIS</u>	Population (in thousands) total	De facto population in a country, area or region as of 1 July of the year indicated. Figures are presented in thousands.	http://www.who.int/whosis/database/core/select.cfm
132	<u>WHOSIS</u>	Population annual growth rate (%)	Average exponential rate of growth of the population over a given period. It is calculated as $\ln(P/P_0)/t$ where t is the length of the period. It is expressed as a percentage.	http://www.who.int/whosis/database/core/select.cfm
133	<u>WHOSIS</u>	Population in urban areas (%)	.	http://www.who.int/whosis/database/core/select.cfm
134	<u>WHOSIS</u>	Population living below the poverty line (% living on < US\$1 per day)	.	http://www.who.int/whosis/database/core/select.cfm
135	<u>WHOSIS</u>	Population using solid fuels (%) urban ?	Percentage of population using solid fuels.	http://www.who.int/whosis/indicators/2007/PopulationSolidFuel/en/index.html
136	<u>WHOSIS</u>	Population with sustainable access to improved drinking water sources	Access to improved water source is the percentage of population with access to an improved drinking water source in a given year.	http://www.who.int/whosis/indicators/2007/ImprovedAccessWaterSanitation/en/index.html
137	<u>WHOSIS</u>	Population with sustainable access to improved sanitation	Access to improved water source is the percentage of population with access to an improved drinking water source in a given year. Access to improved sanitation is the percentage of population with access to improved sanitation in a given year.	http://www.who.int/whosis/indicators/2007/ImprovedAccessWaterSanitation/en/index.html
138	<u>WHOSIS</u>	Prevalence of adults (15 years and older) who are obese	Percentage of adults classified as obese ($BMI \geq 30.0 \text{ kg/m}^2$) among total adult population (15 years and older).	http://www.who.int/whosis/indicators/2007/ObeseAdult/en/index.html

Indicator Definitions

A	B	C	E
<u>WHOSIS</u>	Prevalence of current tobacco smoking among adults (15 years and older) (%)	Prevalence of current tobacco-smoking (including cigarettes, cigars, pipes or any other smoked tobacco products). Current smoking includes both daily and non-daily or occasional smoking.	http://www.who.int/whosis/indicators/2007/TobaccoUse/en/index.html
139			
<u>WHOSIS</u>	Prevalence of tuberculosis (per 100 000 population) ?	The number of cases of TB (all forms) in a population at a given point in time (sometimes referred to as "point prevalence"). Expressed in this database as number of cases per 100 000 population. Estimates include cases of TB in people with HIV.	http://www.who.int/whosis/indicators/2007/TBPrevRate/en/index.html
140			
<u>WHOSIS</u>	Private prepaid plans as percentage of private expenditure on health ?	Prepaid plans and risk-pooling arrangements (prepaidHE); the outlays of private insurance schemes and private social insurance schemes (with no government control over payment rates and participating providers but with broad guidelines from government)	http://www.who.int/whosis/indicators/2007/NationalHealthAccount/s2/en/index.html
141			
<u>WHOSIS</u>	Probability of dying (per 1 000 live births) under five years of age (under-5 mortality rate) ?	Under-five mortality rate is the probability of a child born in a specific year or period dying before reaching the age of five, if subject to age-specific mortality rates of that period.	http://www.who.int/whosis/indicators/2007/MortChild/en/index.html
142			
<u>WHOSIS</u>	Probability of dying (per 1 000 population) between 15 and 60 years (adult mortality rate)	Infant mortality rate is the probability of a child born in a specific year or period dying before reaching the age of one, if subject to age-specific mortality rates of that period. Probability that a 15 year old person will die before reaching his/her 60th birthday.	http://www.who.int/whosis/indicators/2007/MortAdult/en/index.html
143			
<u>WHOSIS</u>	Probability of dying aged < 5 years per 1 000 live births (under-5 mortality rate)	Under-five mortality rate is the probability of a child born in a specific year or period dying before reaching the age of five, if subject to age-specific mortality rates of that period. Infant mortality rate is the probability of a child born in a specific year or period dying before reaching the age of one, if subject to age-specific mortality rates of that period.	http://www.who.int/whosis/indicators/2007/MortChild/en/index.html
144			
<u>WHOSIS</u>	Public and environmental health workers (number) ?	Environment and public health workers: includes environmental and public health officers, sanitarians, hygienists, environmental and public health technicians, district health officers, malaria technicians, meat inspectors, public health supervisors and similar professions.	http://www.who.int/whosis/indicators/2007/HumanResourcesForHealth/en/index.html
145			
<u>WHOSIS</u>	Social security expenditure on health as percentage of general government expenditure on health ?	Social security expenditure on health (SSHE) includes outlays for purchases of health goods and services by schemes that are mandatory and controlled by government. Such social-security schemes that apply only to a selected group of the population, such as public sector employees only, are also included here.	http://www.who.int/whosis/indicators/2007/NationalHealthAccount/s2/en/index.html
146			
<u>WHOSIS</u>	Total expenditure on health as percentage of gross domestic product ?	Total expenditure on health is the sum of general government health expenditure and private health expenditure in a given year, calculated in national currency units in current prices. Total health expenditure as a percentage of gross domestic product (GDP).	http://www.who.int/whosis/indicators/2007/NationalHealthAccount/s2/en/index.html
147			
<u>WHOSIS</u>	Total fertility rate (per woman)	The term "case detection", as used here, means that TB is diagnosed in a patient and is reported within the national surveillance system, and then to WHO. The case-detection rate is calculated as the number of new smear positive cases notified divided by the number of new smear positive cases estimated for that year, expressed as a percentage.	http://www.who.int/whosis/database/core/select.cfm
148			
<u>WHOSIS</u>	Tuberculosis: DOTS case detection rate (%) ?	The proportion of new smear-positive TB cases registered under DOTS in a given year that successfully completed treatment, whether with or without bacteriological evidence of success ("cured" or "treatment completed" respectively).	http://www.who.int/whosis/indicators/2007/TBCasesDetectedDOTS/en/index.html
149			
<u>WHOSIS</u>	Tuberculosis: DOTS treatment success (%) ?	At the end of treatment, each patient is assigned one of the following six mutually exclusive treatment outcomes: cured; completed; died; failed; defaulted; and transferred out with outcome unknown. The proportions of cases assigned to these outcomes, plus any additional cases registered for treatment but not assigned to an outcome, add up to 100% of cases registered.	
150			

Indicator Definitions

	A	B	C	E
	WHOSIS	Years of life lost to communicable diseases (%) ?	YLLs are calculated from the number of deaths multiplied by a standard life expectancy at the age at which death occurs. The standard life expectancy used for YLLs at each age is the same for deaths in all regions of the world and is the same as that used for the calculation of disability-adjusted life years (DALYs). Additionally, 3% time discounting and non-uniform age weights that give less weight to years lived at young and older ages were used, as for the DALY. With non-uniform age weights and 3% discounting, a death in infancy corresponds to 33 YLLs, and deaths at age 5 to 20 years to around 36 YLLs.	http://www.who.int/whosis/database/core/core_select.cfm
151				
	WHOSIS	Years of life lost to non-communicable diseases (%) ?	YLLs are calculated from the number of deaths multiplied by a standard life expectancy at the age at which death occurs. The standard life expectancy used for YLLs at each age is the same for deaths in all regions of the world and is the same as that used for the calculation of disability-adjusted life years (DALYs). Additionally, 3% time discounting and non-uniform age weights that give less weight to years lived at young and older ages were used, as for the DALY. With non-uniform age weights and 3% discounting, a death in infancy corresponds to 33 YLLs, and deaths at age 5 to 20 years to around 36 YLLs.	http://www.who.int/whosis/database/core/core_select.cfm
152				
153				

Resources

	A	B
1	Organizations & Information of Potential Interest	
2	African Studies	http://www.sas.upenn.edu/African_Studies/AS.html
3	Canadian Institute for Health Information	http://www.cihi.com/
4	CARE	http://www.care.org/
5	CDC: Coordinating Office for Global Health: Partnerships	http://www.cdc.gov/cogh/partnerships.htm
6	CDC: Coordinating Office for Global Health: Resource Links	http://www.cdc.gov/cogh/links.htm
7	CDHAM: The Online Disaster and Humanitarian Assistance Portal (ODHAP),	http://odhap.cdham.org/
8	Center for Disaster and Humanitarian Assistance Medicine (CDHAM)	http://www.cdham.org
9	Center for Disaster and Humanitarian Assistance Medicine Department of Military & Emergency Medicine	http://www.usuhs.mil/mem/cdham.html
10	DevInfo (DevInfo is a powerful database system which monitors progress towards the Millennium Development Goals.)	http://www.devinfo.org/index.htm?IDX=1
11	DHS: Demographic & Health Surveys	http://www.measuredhs.com/countries/start.cfm
12	Disease Control Priorities Project (use the "quick find" feature)	http://www.dcp2.org/page/main/BrowseCountries.html
13	Doctors without Borders	http://www.doctorswithoutborders.org/home.cfm
14	Global Burden of Disease Study	http://www.who.int/healthinfo/statistics/gbdestimatescauselist.pdf
15	Global Health Atlas: Health Care Workers	http://www.who.int/globalatlas/default.asp
16	Global Health Council	http://www.globalhealth.org/
17	Global Policy Forum	http://www.globalpolicy.org/ngos/index.htm
18	Immunization Statistics	http://www.unicef.org/immunization/index_statistics.html
19	Measure Demographic & Health Survey (DHS)	http://www.measuredhs.com/
20	Measure Demographic & Health Survey (DHS): Country Listing	http://www.measuredhs.com/countries/
21	Methodology and Tools for Human Rights-Based Assessment & Analysis 2004	http://hurilink.org/tools/MethodologyandToolsforHRBAssessmentandAnalysis-BiH.pdf
22	Millennium Development Goal Progress Chart	http://mdgs.un.org/unsd/mdg/Resources/Static/Products/Progress2007/MDG_Report_2007_Progress_Chart_en.pdf
23	Millennium Development Goals "Facts"	http://www.devinfo.org/facts.htm?IDX=13
24	Millennium Development Goals Network (MDGNet)	http://www.undg.org/?P=99
25	Multiple Indicator Cluster Survey (MICS)	http://www.childinfo.org/
26	Multiple Indicator Cluster Survey (MICS): Tables detailed down to providences	http://www.childinfo.org/MICS2/natlMICSrepz/MICSnatrep.htm
27	PAHO: Pan American Health Organization	http://www.paho.org/english/dd/ais/coredata.htm
28	PAHO: Regional Core Health Indicators	http://www.paho.org/English/SHA/coredata/tabulator/newTabulator.htm
29	Red Cross	http://www.icrc.org/
30	U.S. State Department	http://www.state.gov/
31	UNICEF	http://www.unicef.org/
32	UNICEF: Immunization Country Reports	http://www.childinfo.org/areas/immunization/database.php
33	UNICEF: Immunization Summary	http://www.childinfo.org/areas/immunization/Immunization_Summary_2007.pdf
34	UNICEF: Country Listing	http://www.unicef.org/infobycountry/index.html
35	UNICEF: Immunization Country Reports	http://www.childinfo.org/areas/immunization/database.php
36	Uniformed Services University of the Health Sciences (USUHS)	
37	Uniformed Services University of the Health Sciences: Online Preparedness Education Program	http://oep.usuhs.edu/
38	United Nations Development Group	http://www.undg.org/
39	United Nations Office for the Coordination of Humanitarian Affairs (OCHA)	http://ochaonline.un.org/
40	United States Joint Forces Command	http://www.jfcom.mil/
41	USAID	http://www.usaid.gov/
42	USAID: Famine Early Warning System	http://www.fews.net/
43	White House	http://www.whitehouse.gov/response/humanitarianactions.html
44	WHO Regional Office	http://www.who.int/whosis/database/menu.cfm?path=whosis.regions
45	WHO: Africa Health Profile	http://www.afro.who.int/home/countryprofiles.html
46	WHO: Chronic Disease and Health Promotion Topics	http://www.who.int/chp/topics/en/
47	WHO: Country Log Book (Health metrics)	http://www.who.int/healthmetrics/tools/logbook/en/
48	WHO: Epidemiological Fact Sheets on HIV/AIDS and Sexually Transmitted Infections	http://www.who.int/globalatlas/predefinedReports/default.asp
49	WHO: Europe Health Indicators	http://www.euro.who.int/healthinfo/products/20020514_2
50	WHO: FluNet Reports	http://www.who.int/globalatlas/predefinedReports/default.asp
51	WHO: Global InfoBase (info on chronic disease & risk factors)	http://www.who.int/infobase/report.aspx
52	WHO: Indicator Definitions and Metadata	http://www.who.int/whosis/indicators/2007compendium/en/index.html
53	Who: Regional Offices	http://www.who.int/healthinfo/statistics/regions/en/index.html
54	WHO: Reproductive Health Indicator Database	http://www.who.int/reproductive-health/global_monitoring/RHRxmls/RHRmainpage.htm
55	WHO: World Health Organization	http://www.who.org/
56	WHO: World Health Organization: Country Listing	http://www.who.int/countries/en/

Resources

	A	B
57	WHO: Data & Statistics	http://www.who.int/research/en/
58	World Bank	http://www.worldbank.org/
59	World Bank: Data & Research	http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/0,,menuPK:476823~pagePK:64165236~piPK:64165141~theSitePK:469372,00.html
60	World Bank: Health, Nutrition, and Population Stats	http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTHEALTHNUTRITIONANDPOPULATION/EXTDATASTATISTICSHNP/EXTHNPS/TATS/0,,menuPK:3237172~pagePK:64168427~piPK:64168435~theSitePK:3237118,00.html
61	World Bank: Country & Region Listing	http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/0,,pagePK:180619~theSitePK:136917,00.html
62	World Factbook	https://www.cia.gov/cia/publications/factbook/

Acronyms

	A	B	C
1	Acronym	Meaning	
2	CDC	Center for Disease Control	http://www.cdc.gov
3	CPT	Current Procedural Terminology	
4	DHS	Demographic & Health Surveys	http://www.measuredhs.com/
5	FTE	Full Time Equivalent	
6	MICS	Multiple Indicator Cluster Survey	http://www.childinfo.org/
7	OHCHR	Office of UN High Commissioner for Human Rights	www.ohcr.org
8	PAHO	PanAmerica Health Organization	http://www.paho.org/
9	RVU	Relative Value Units	
10	UNDP	United Nations Development Programme	www.undp.ba
11	UNICEF	United Nations Children's Fund	www.unicef.org
12	WHO	World Health Organization	http://www.who.int/en/
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RVU Proposed FY09 Benchmarks

A	B	C	D	E	F	G	H	I
	Utilized in Manpower Model Calculations?	CLINICAL SPECIALTY	CURRENT BENCHMARK	BENCHMARK UNIT	FY09 BENCHMARK	CURRENT RVU per ENCOUNTER*	# RVUs per day (Current Benchmark / (168*12)) 7.5	RVU/hr (#RVUs per day / 7.5 hrs)
1								
2								
3	N	SURGERY	16,630	IASA/OR FTE	12,639	2.30	61.87	8.25
4	N	SURGERY	9,899	IASA/OR FTE		No data	48.46	6.46
5	N	SURGERY	13,025	IASA/OR FTE			36.83	4.91
6	N	SURGERY	9,900	RVUs	7,524		17.67	2.36
7	N	SURGERY	4,750	Encounters	4,750	1.12	21.98	2.88
8	N	SURGERY	5,900	RVUs	4,750	1.92	23.25	3.10
9	N	SURGERY	6,000	RVUs	4,560	2.28	22.69	2.98
10	Y	SURGERY	6,100	RVUs	4,636	1.92	22.69	3.03
11	Y	SURGERY	7,400	RVUs	4,560	1.75	27.53	3.67
12	N	SURGERY	7,000	RVUs	5,320	1.68	26.04	3.47
13	N	SURGERY	5,600	RVUs	4,256	2.29	20.83	2.78
14	N	SURGERY	4,250	RVUs	2,888	1.36	15.81	2.11
15	N	SURGERY	6,200	RVUs	4,712	1.64	23.07	3.08
16	N	SURGERY	6,900	RVUs	5,244	1.66	25.67	3.42
17	N	MEDICINE	4,550	RVUs	3,600	1.14	16.93	2.26
18	N	MEDICINE	NA	Encounters	1,200	0.73	#VALUE!	#VALUE!
19	N	MEDICINE	2,050	HCP Sites	100% annual assessment	No data	7.63	1.02
20	N	MEDICINE	5,950	RVUs	4,522	1.52	22.14	2.95
21	N	MEDICINE	5,900	RVUs	4,256	1.36	20.83	2.78
22	N	MEDICINE	4,750	RVUs	36 Hours/5610	1.49	17.67	2.36
23	Y	MEDICINE	4,500	RVUs	3,268	0.95	16.74	2.23
24	N	MEDICINE	6,900	RVUs	5,244	1.99	25.67	3.42
25	N	MEDICINE	3,950	RVUs	2,926	0.96	14.32	1.91
26	N	MEDICINE	4,850	RVUs	3,496	1.10	18.04	2.41
27	Y	MEDICINE	3,300	RVUs	2,508	1.10	12.28	1.64
28	N	MEDICINE	3,950	RVUs	2,926	1.28	14.32	1.91
29	N	MEDICINE	2,900	RVUs	2,204	1.17	10.79	1.44
30	N	MEDICINE	3,950	RVUs	2,926	0.87	14.32	1.91
31	N	MEDICINE	3,950	RVUs	2,926	1.05	14.32	1.91
32	N	MEDICINE	5,250	RVUs	3,800	1.44	19.53	2.60
33	N	MEDICINE	7,100	RVUs	5,396	2.85	26.41	3.52
34	N	MEDICINE	2,750	RVUs	2,090	1.21	10.23	1.36
35	N	MEDICINE	2,520	Encounters	2,520	0.89	9.38	1.25
36	N	MEDICINE	5,200	RVUs	3,420	1.71	19.36	2.58
37	N	MEDICINE	7,650	RVUs	4,560	No data	28.46	3.79
38	Y	MEDICINE	4,400	RVUs	3,344	1.05	16.37	2.18
39	N	MEDICINE	5,750	RVUs	4,370	2.22	21.39	2.85
40	N	MEDICINE	4,000	RVUs	2,029	0.77	14.88	1.98
41	N	MEDICINE	4,300	RVUs	3,040	1.13	16.00	2.13
42	N	MEDICINE	4,900	RVUs	3,724	1.48	18.23	2.43
43	N	MEDICINE	4,550	RVUs	3,458	1.65	16.93	2.26
44	N	MEDICINE	36 Hrs	Hours	36 Hrs/8,500	4.17	#VALUE!	#VALUE!
45	N	MEDICINE	3,650	RVUs	2,774	1.92	13.58	1.81
46	N	MEDICINE	5,650	RVUs	3,724	1.43	21.02	2.80
47	N	MEDICINE	4,100	RVUs	3,116	1.72	15.25	2.03
48	N	MEDICINE	3,700	RVUs	2,812	1.11	13.76	1.84
49	N	MEDICINE	2,900	Encounters	2,900	0.95	10.79	1.44
50	N	MEDICINE	3,400	RVUs	2,584	1.69	12.65	1.69
51	N	MEDICINE	1,650	Encounters	1,100	1.49	6.14	0.82
52	N	MEDICINE	8,350	RVUs	6,346	No data	31.06	4.14

RVU Proposed FY09 Benchmarks

A	B	C	D	E	F	G	H	I
Utilized in Manpower Model Calculations?		CLINICAL SPECIALTY	CURRENT BENCHMARK	BENCHMARK UNIT	FY09 BENCHMARK	CURRENT RVU per ENCOUNTER*	# RVUs per day (Current Benchmark / (168-12) * 7.5)	RVU/hr (#RVUs per day / 7.5 hrs)
2								
53	N	MEDICINE Radiology/Diag/Invasive (19)	11,150	RVUs/Cases	8,500/7,500	No data	41.48	5.53
54	N	MEDICINE Radiology/Diag/NonIntr/Academic (19)	8,500	RVUs/Studies	7,050/6,500	No data	31.62	4.22
55	N	MEDICINE Radiology/Diag/NonInvasive (19)	8,100	RVUs/Studies	8,100/12,150	No data	30.13	4.02
56	N	MEDICINE Radiology/Interventional (19)	NA	RVUs/Cases	7,500/7,500	No data	#/VALUEI	#/VALUEI
57	N	MEDICINE Social Work/Case Management	30 Cases	Active cases/month	30 Cases	No data	#/VALUEI	#/VALUEI
58	N	MEDICINE Social Work/Mental Health	1,650	Encounters	1,650	1.27	6.14	0.82
59	Y	DENTISTRY Comprehensive Dentistry	3,500	DW/s	3,500		13.02	1.74
60	N	DENTISTRY Dental Hygiene	1,800	DW/s	1,800		6.70	0.89
61	N	DENTISTRY Dental Public Health	As utilized	DW/s	As utilized		#/VALUEI	#/VALUEI
62	N	DENTISTRY Dental Research	As utilized	DW/s	As utilized		#/VALUEI	#/VALUEI
63	N	DENTISTRY Endodontics	3,300	DW/s	3,300		12.28	1.64
64	N	DENTISTRY Exodontia ACP	3,800	DW/s	3,800		14.14	1.88
65	N	DENTISTRY General Dentistry	3,300	DW/s	3,300		12.28	1.64
66	N	DENTISTRY General Dentistry ACP	3,400	DW/s	3,400		12.65	1.69
67	N	DENTISTRY Maxillofacial Prosthetics	3,200	DW/s	3,200		11.90	1.59
68	N	DENTISTRY Operative Dentistry	3,400	DW/s	3,400		12.65	1.69
69	Y	DENTISTRY Oral & Maxillofacial Surgery	4,300	DW/s	4,300		16.00	2.13
70	N	DENTISTRY Oral Medicine	2,000	DW/s	2,000		7.44	0.99
71	N	DENTISTRY Oral Pathology	3,200	DW/s	3,200		11.90	1.59
72	N	DENTISTRY Orofacial Pain	3,100	DW/s	3,100		11.53	1.54
73	N	DENTISTRY Orthodontics	3,990	DW/s	3,990		14.84	1.98
74	N	DENTISTRY Pediatric Dentistry	3,000	DW/s	3,000		11.16	1.49
75	N	DENTISTRY Periodontics	3,200	DW/s	3,200		11.90	1.59
76	N	DENTISTRY Prosthodontics	3,200	DW/s	3,200		11.90	1.59
77							0.00	0.00
78							0.00	0.00

GENERAL NOTES:

- (1) Targets listed are based on 36 clinical hours/week for clinic-based specialties such as Family Practice; this would be considered 36 bookable hours of clinic a week; for surgical specialties, this would include OR time. The standard of 36 clinical hours/week does not include call or duty hours. The average for 100% clinical effort from MGMA surveys from which most benchmarks are based is an average of 47 hours a week based on the last three surveys. Military providers have military-unique obligations making 47 clinical hours a week (not counting duty) difficult. As a result, the benchmarks were adjusted downward to adjust for the difference in 100% clinical effort. See attached worksheet titled Calculating Adjustment Factor for Difference Between MGMA and Navy Hours per Week
- (2) Benchmarks are for total professional work RVUs regardless of place of service; this includes inpatient MEPRS A code RVUs as well as outpatient B code RVUs. As a result, when monitoring provider productivity to benchmarks, workload should be pulled by Provider Specialty Codes or Provider IDs vs. MEPRS codes.
- (3) It is critical that Providers are assigned the appropriate Provider Specialty Code (PSC) and Occupation Code particularly for providers with multiple specialties such as subspecialist. Workload is credited to the first valid PSC. For example, a cardiologist had to complete a residency in general internal medicine prior to completing a fellowship in cardiology and will have PSC 011 for Internist and 014 for Cardiology. If PSC 011 for an Internist is listed first then all of the Cardiologist workload will be credited to internal medicine vs. cardiology.
- (4) In MTfs where the demand does not exist to meet benchmark standards, then RVUs per encounter may be used as a performance measure. The RVUs per encounter listed are the NAMED average for the specialty when pulled by PSC vs. MEPRS codes. The RVU per encounter is affected by the case mix, documentation and accurate coding. Referral management is an important aspect of maintaining an appropriate case mix.
- (5) Previous benchmarks for MEPRS codes but not true Specialties such as Pain Clinic and Primary Care have been discontinued.
- (6) Previous benchmarks without associated MEPRS Code, PSC or Occupational Specialty Codes, such as Psychology with testing without tech have been discontinued.
- (7) Due to lack of use of PSC, Occupation Codes and MEPRS subspecialty codes in OB/Gyn and Orthopedics, these benchmarks were lumped together. In addition, if a subspecialty provider does not spend at least 80% or more of his/her clinical time in their subspecialty, then it is unlikely they will meet the subspecialty benchmark assuming it is a higher target than the associated general specialty.
- (8) Due to lack of separate MEPRS Codes and Occupational Specialty codes for Cardiothoracic and Thoracic Surgery, these benchmarks were lumped together.

RVU Proposed FY09 Benchmarks

	A	B	C	D	E	F	G	H	I
	Utilized in Manpower Model Calculations?		CLINICAL SPECIALTY	CURRENT BENCHMARK	BENCHMARK UNIT	FY09 BENCHMARK	CURRENT RVU per ENCOUNTER*	# RVUs per day (Current Benchmark / (168*12)) * 7.5	RVU/hr (#RVUs per day / 7.5 hrs)
2									
98				(9) The average RVU for the most recent three MGMA survey results reflect lower RVU production than in the original benchmark based on CY 1998, 2000, and 2001 MGMA Surveys. As a result, the benchmarks for Ophthalmology, Podiatry, IM Heme/Onc, Neurology, Developmental Pediatrics, Pediatric Endocrinology and Pediatric Neurology have been decreased.					
99				(10) Allergy benchmark changed based on input from Specialty Leader with more specific data from the Patient Centered Allergy Practice Survey, a study by Bain & Co on Allergy Health Care Delivery and Medical Program Assessment, professional association data on staffing, and comparison with Army standards.					
90				(11) Audiology benchmark changed based on input from Specialty Leader with more specific data from audiology professional organization ASHA and due to the different missions and staffing for clinical audiology in support of ENT and hearing conservation in support of the fleet where most of the work is performed by techs and the audiologist's role is program management, education and work place monitoring.					
91				(12) Cardiology Benchmarks lumped together based on feedback from Specialty Leader and lack of specific MEPRS, PSC and Occupational Specialty Codes for previous benchmarks.					
92				(13) Many EDs exist for mission requirements (such as OCONUS) and not for "business" reasons. As a result, the standard is either 36 clinical hours or RVUs whichever is more appropriate for the MTF.					
93				(14) Family Practice benchmarks changed to lump the previous benchmarks together due to the fact that there is no MEPRS, PSC, or Occupational Specialty Codes for FP with OB vs. FP without OB.					
94				(15) No MEPRS, PSC, or Occupation Codes to separate Pulmonary from Pulmonary in Critical Care so the benchmarks were lumped together.					
95				(16) Benchmark for Occupational Health/Primary care discontinues because no MEPRS, PSC or Occ code to designate it as a specialty.					
96				(17) There are 14 different PSCs and 13 different Occupation codes for Pathology but there has only been one benchmark. Averaging the MGMA for all subspecialties of pathology results in a lower average then when using anatomical pathology alone.					
97				(18) Optometry is not included in MGMA survey and previous benchmark was based on production at one MTF in FY03 by MEPRS codes which includes the work performed by techs. Benchmark adjusted to reflect enterprise wide production by PSC.					
98				(19) Changes at request of Specialty Leader					
99				(20) Benchmarks reflect all work RVUs regardless of place of services, as a result neonatology an inpatient specialty workload in the MEPRS A codes can be evaluated by pulling workload by Provider Specialty Code as well as by MEPRS code.					
100				(21) All clinical HCP testing sites require an annual program/compliance review by the regional audiologist. Test sites will implement with 100% compliance the NEHC TM 6260 series to ensure timely audiologic and medical evaluation for noise exposed personnel enrolled in the HCP.					

ICD-9 Codes

(This is a partial listing. For the entire list, please see file)

	A	B
1	Description	Diagnosis
2	10-19% BDY BRN/10-19% 3D	94811
3	10-19% BDY BRN/3 DEG NOS	94810
4	1 DEG BURN BACK OF HAND	94416
5	1 DEG BURN FINGR W THUMB	94414
6	1 EYE-SEV/OTH-BLIND NOS	36911
7	1ST DEG BURN ABDOMN WALL	94213
8	1ST DEG BURN ANKLE	94513
9	1ST DEG BURN ARM-MULT	94319
10	1ST DEG BURN ARM NOS	94310
11	1ST DEG BURN AXILLA	94314
12	1ST DEG BURN BACK	94214
13	1ST DEG BURN BREAST	94211
14	1ST DEG BURN CHEST WALL	94212
15	1ST DEG BURN CHIN	94114
16	1ST DEG BURN EAR	94111
17	1ST DEG BURN ELBOW	94312
18	1ST DEG BURN EYE	94112
19	1ST DEG BURN FACE NEC	94117
20	1ST DEG BURN FINGER	94411
21	1ST DEG BURN FOOT	94512
22	1ST DEG BURN FOREARM	94311
23	1ST DEG BURN GENITALIA	94215
24	1ST DEG BURN HAND-MULT	94418
25	1ST DEG BURN HAND NOS	94410
26	1ST DEG BURN HEAD-MULT	94119
27	1ST DEG BURN HEAD NOS	94110
28	1ST DEG BURN KNEE	94515
29	1ST DEG BURN LEG-MULT	94519
30	1ST DEG BURN LEG NOS	94510
31	1ST DEG BURN LIP	94113
32	1ST DEG BURN LOWER LEG	94514
33	1ST DEG BURN MULT FINGER	94413
34	1ST DEG BURN MULT SITE	9461
35	1ST DEG BURN NECK	94118
36	1ST DEG BURN NOSE	94115
37	1ST DEG BURN PALM	94415
38	1ST DEG BURN SCALP	94116
39	1ST DEG BURN SCAPULA	94316
40	1ST DEG BURN SHOULDER	94315
41	1ST DEG BURN THIGH	94516
42	1ST DEG BURN THUMB	94412
43	1ST DEG BURN TOE	94511
44	1ST DEG BURN TRUNK NEC	94219
45	1ST DEG BURN TRUNK NOS	94210
46	1ST DEG BURN UPPER ARM	94313
47	1ST DEG BURN WRIST	94417
48	1ST DEGREE BURN NOS	9491
49	20-29% BDY BRN/10-19% 3D	94821
50	20-29% BDY BRN/20-29% 3D	94822
51	20-29% BDY BRN/3 DEG NOS	94820
52	24 COMP WEEKS GESTATION	76522
53	<24 COMP WKS GESTATION	76521
54	25-26 COMP WKS GESTATION	76523
55	27-28 COMP WKS GESTATION	76524
56	29-30 COMP WKS GESTATION	76525
57	2 DEG BURN BACK OF HAND	94426

CPT-05

(This is a partial listing. For the entire list, please see file)

	A	B	C	D	E
1	fmtname	start	label	hlo	type
2	cpt05b	0500F	0.83		
3	cpt05b	0501F	0.83		
4	cpt05b	0502F	0.83		
5	cpt05b	0503F	1.28		
6	cpt05b	10021	1.27		
7	cpt05b	10022	1.27		
8	cpt05b	10040	1.18		
9	cpt05b	10060	1.17		
10	cpt05b	10061	2.4		
11	cpt05b	10080	1.17		
12	cpt05b	10081	2.45		
13	cpt05b	10120	1.22		
14	cpt05b	10121	2.69		
15	cpt05b	10140	1.53		
16	cpt05b	10160	1.2		
17	cpt05b	10180	2.25		
18	cpt05b	11000	0.6		
19	cpt05b	11001	0.3		
20	cpt05b	11004	10.31		
21	cpt05b	11005	13.75		
22	cpt05b	11006	12.61		
23	cpt05b	11008	5		
24	cpt05b	11010	4.19		
25	cpt05b	11011	4.94		
26	cpt05b	11012	6.87		
27	cpt05b	11040	0.5		
28	cpt05b	11041	0.82		
29	cpt05b	11042	1.12		
30	cpt05b	11043	2.38		
31	cpt05b	11044	3.06		
32	cpt05b	11055	0.43		
33	cpt05b	11056	0.61		
34	cpt05b	11057	0.79		
35	cpt05b	11100	0.81		
36	cpt05b	11101	0.41		
37	cpt05b	11200	0.77		
38	cpt05b	11201	0.29		
39	cpt05b	11300	0.51		
40	cpt05b	11301	0.85		
41	cpt05b	11302	1.05		
42	cpt05b	11303	1.24		
43	cpt05b	11305	0.67		
44	cpt05b	11306	0.99		
45	cpt05b	11307	1.14		
46	cpt05b	11308	1.41		
47	cpt05b	11310	0.73		
48	cpt05b	11311	1.05		
49	cpt05b	11312	1.2		
50	cpt05b	11313	1.62		
51	cpt05b	11400	0.85		

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	A	B	C	D
1				
2	Bibliography			
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